PIT AND QUARRY

STA-SMOOTH ARCH-CRIMP

SUPER-LOY VIBRATING-SCREEN SECTIONS

SUPER-HARD - - - SUPER-TOUGH - - - SUPER-STRONG

SUPER-LOY SCREENS are made from a high carbon steel specially alloyed to withstand abrasion longer — endure vibration better — resist fatigue to the utmost

ORDER LUDLOW-SAYLOR HOOK-STRIPS FOR ALL TENSIONED VIBRATING-SCREEN SECTIONS.

THE LUDLOW-SAYLOR WIRE COMPANY

634 S. Newstead Ave. ST. LOUIS 10, MO.

Washed iron ore is stacked at rate of 600 long tons per hour by this 570 ft. track-mounted trailer belt conveyor (fed by fixed belt conveyor) and Link-Belt 115 ft. radius revolving, self-propelled stacker, which can make storage pile 42 ft. high.

Rely on one source... one responsibility for the best in belt conveyors

LINK-BELT engineering experience plus quality components combine to cut handling costs

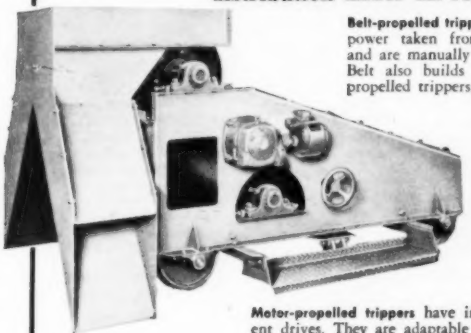
WHETHER you must move a few tons a day or several thousand tons per hour . . . whether the haul is measured in feet or miles—you'll find the answer in belt conveyors at Link-Belt.

Here's a nation-wide engineering organization that will follow through from start to finish—the designing, manufacturing, erecting of conveying equipment. And nowhere can you match Link-Belt's combination of vast application experience . . . complete line of quality components . . . expert coordination of related equipment.

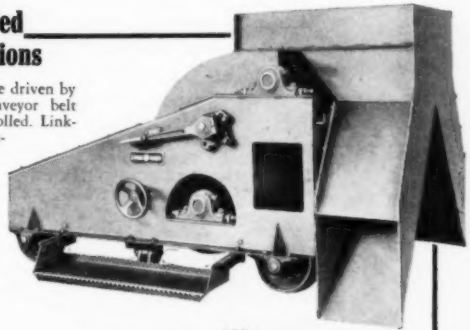
Get all the facts from the Link-Belt office near you. Link-Belt engineers are glad to work with you and your consultants—help you get the finest in belt conveyors.

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, Duluth, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices in principal cities.

LINK-BELT Trippers offer controlled distribution under all conditions



Belt-propelled trippers are driven by power taken from conveyor belt and are manually controlled. Link-Belt also builds winch-propelled trippers.



Motor-propelled trippers have independent drives. They are adaptable to automatic operation and control.

LINK-BELT

BELT CONVEYOR EQUIPMENT

12,005-B

PIT AND QUARRY, February, 1952, Vol. 44, No. 8. Published monthly by the Complete Service Publishing Company, 431 South Dearborn St., Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $3 additional for each year. Single copy 35 cents. Entered as second-class matter February 28, 1939, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

...WHEN YOU SPECIFY ALLIS-CHALMERS GRINDING MILLS

1 **YOU CAN BE SURE** of getting a grinding mill specifically suited to your requirements. A wide range and multiple combinations of types and sizes assures this . . . assures top, economical performance year in, year out.

2 **YOU GAIN** the seasoned benefits and *unequalled* experience accumulated through the successful installation of more than 4200 Allis-Chalmers mills over a period of 70 years.

3 **YOU ARE DOUBLY ASSURED** of completely balanced operation, with its resulting economies, when you equip your mills with motors, drives and controls — all manufactured in A-C shops.

NEW 44-page grinding mill bulletin 07B6718A is chock full of valuable tables and grinding mill information. Get it from A-C representative in your area or write Allis-Chalmers, Milwaukee 1, Wis. A-3563

Pulverator is an Allis-Chalmers trademark.

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Gyratory Crushers

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5 Times the Service

driving air conditioning blower

CONVENTIONAL belts failed in 4 months, due to heavy overload.

G.T.M.—Goodyear Technical Man—specified Steel Cable V-Belts with load-carrying cables of airplane-type steel to handle this problem drive. Steel Cable Belts lasted 20 months 2 days—*gave five times the service.*

FOR HOSE, FLAT BELTS, V-BELTS, MOLDED GOODS, PACKING, TANK LINING, RUBBER-COVERED ROLLS *built to the world's highest standard of quality, phone your nearest Goodyear Industrial Rubber Products Distributor. Look for him in the yellow pages of your telephone directory.*

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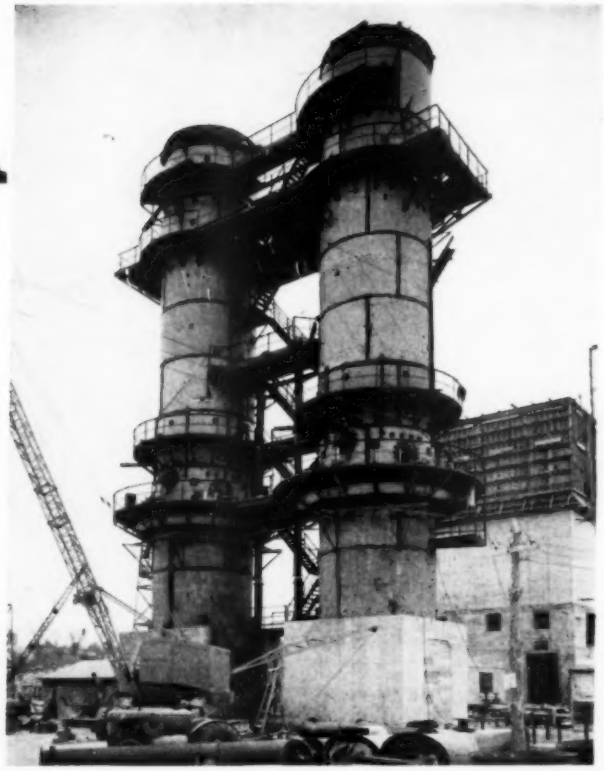
VERTICAL LIME KILNS

under construction . . . the first installation of its type in America. —Two 100 ton NATURAL gas fired lime kilns.



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- Low Fuel Costs
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- Automatic Control
- Moderate Power Needs

Full Details sent on Request

Priest Vertical Lime Kilns are introducing new standards of performance in the American lime industry.

British-designed, these shaft type kilns have a long and highly successful record of operation in many European plants.

Priest Vertical Kilns are compact, completely mechanized, and automatically controlled, except for the periodic drawing of burned lime.

A patented, water-cooled burner arrangement produces high-quality, uniform lime from feed sizes ranging from 3" to 9" cube.

Priest Kilns are built in capacities up to 175 tons daily, and larger ones are under construction.

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This is all there is to the "Feather-Touch" Clutch Control. No valves or tubing. Nothing affected by temperature. Nothing to refill.

Ease of Control means MONEY!

Easy control means faster operation and higher output per unit of time and it means a higher output curve as the day progresses because it reduces cumulative fatigue.

The Northwest brings you the "Feather-Touch" Clutch Control—a simple *mechanical* device that throws heavy drum clutches through the power of the engine. There are no pipes, no pumps, no valves and nothing to refill. It is not subject to influence by weather or temperature. It brings the operator the "feel of the load" at all times. Release is positive and your machine *cannot be shut down by control failure.*

In conjunction with the Northwest Dual Independent Crowd, that utilizes force other independent crowd shovels waste, it makes the rock jobs easier and assures greater output.

It is just another of the many Northwest advantages that make the Northwest a real Rock Shovel. You can't afford anything but the best for the *Key Spots* at the heart of the job. You should know about Northwest advantages. Ask for details and plan ahead. Why not place your order and be sure of a real Rock Shovel?

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Only a *clean* engine can give you the day-in, day-out dependability, power, and economy you must have for profitable operation. And you *assure* these results—both from Diesel and heavy-duty gasoline engines—when you use famous *Delvac Oils!*

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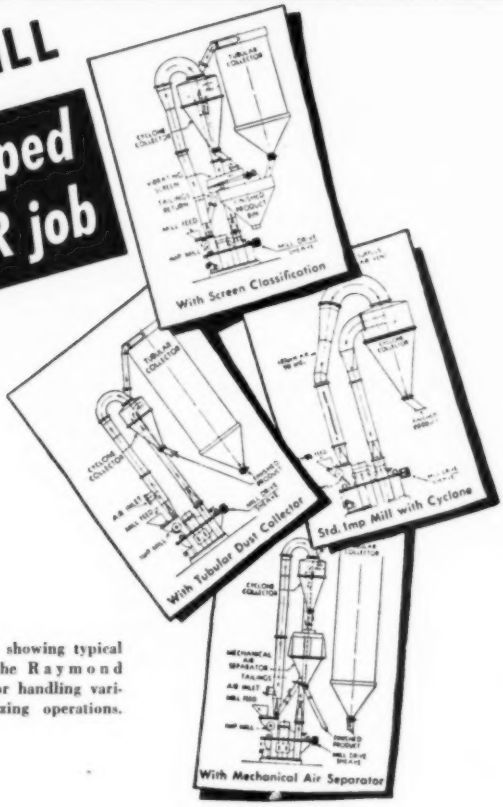
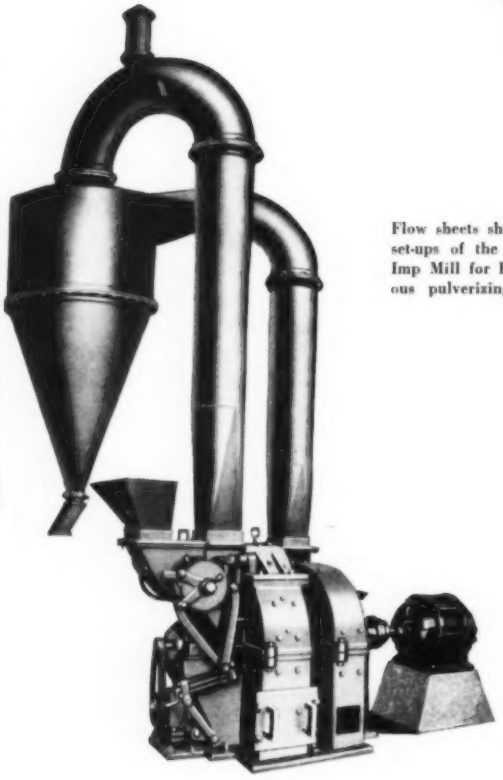
Choose the...

Raymond IMP MILL

Specially Equipped to handle YOUR job





Flow sheets showing typical set-ups of the Raymond Imp Mill for handling various pulverizing operations.

This multi-purpose grinding unit provides a clean, dust-free, automatic system for the low-cost production of the softer non-metallics in finely powdered form, such as diatomaceous earth, clays and similar materials.

This standard unit may be variously equipped, as shown in the above diagrams, to handle almost any combination of pulverizing, blending, separating, and conveying. By the addition of Flash Drying Accessories to the equipment, moisture-laden materials can be dried and ground in one simultaneous operation.

Tell us your requirements — a Raymond Imp Mill, tailored to your particular job, may offer special economies in handling your problem.

COMBUSTION ENGINEERING – SUPERHEATER, INC.

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Chicago 22, Illinois

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PULVERIZER DIVISION

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ONE YEAR REPLACEMENT CONTRACT

All products manufactured by Winslow Engineering Company are warranted to be free from any defects in workmanship and material. If, within one year from date of original purchase for installation, any unit or part of any of these products is found after inspection at the Winslow factory to be defective, it will be replaced free of charge if returned to the manufacturer, Winslow Engineering Company, Oakland, California, charges prepaid. No guarantee for element life in service is implied by this warranty.

Guaranty

Winslow products, when used as accessories, are further guaranteed not to harm in any way any equipment to which their use has been specified by Winslow engineers, providing the products are installed and used in accordance with specifications and instructions issued by Winslow Engineering Company.

Winslow Engineering Company neither assumes nor authorizes any other person to assume for it any further liability than expressly stated in this warranty.

Chas. A. Winslow
President

WINSLOW ENGINEERING COMPANY
4069 Hollis Street · Oakland 8, California

Winslow guarantees both the quality of its filters and elements and the safety of your equipment when these products are used on it. When you buy Winslow, you buy peace of mind. Enjoy this added value!

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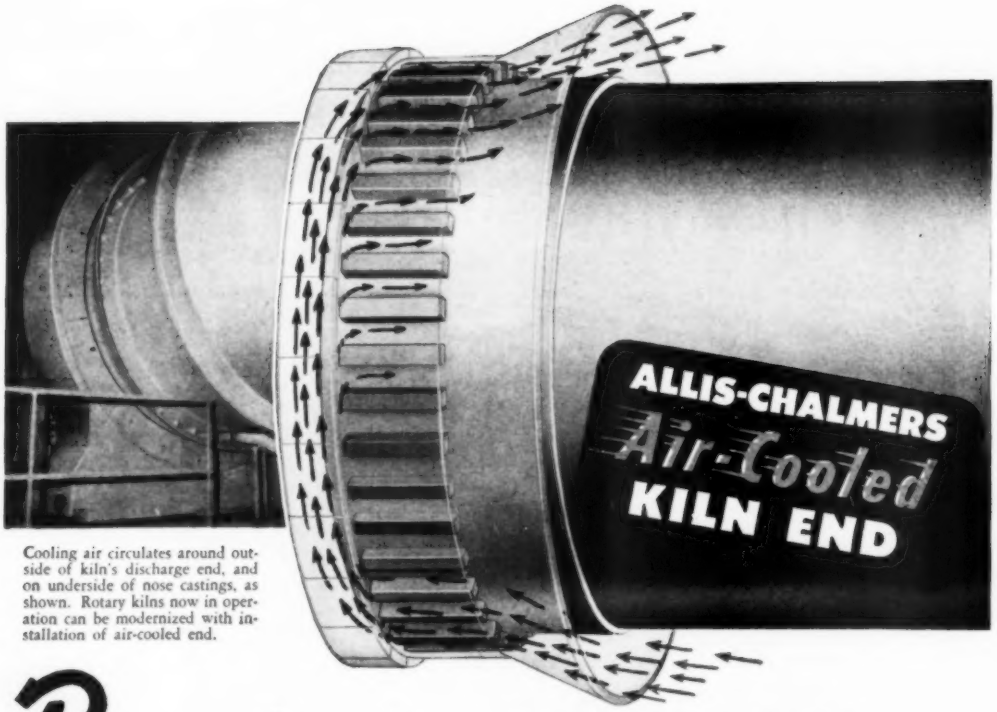

Cooling air circulates around outside of kiln's discharge end, and on underside of nose castings, as shown. Rotary kilns now in operation can be modernized with installation of air-cooled end.

Pays for Itself in 2 to 3 Years

...IN REFRACTORY SAVINGS ALONE!

BIG REFRACTORY SAVINGS . . . Discharge end of kiln shell stays cool, round and rigid. Refractory brick at discharge end lasts longer because air-cooled discharge end eliminates warpage or end distortion.

BIG MAINTENANCE SAVINGS . . . Fewer shut-downs to replace end brick. Less loss of valuable production time. Savings in brick, labor and downtime will pay for air-cooled end several times over during life of kiln.

BIG FUEL SAVINGS . . . Air-cooled discharge end makes possible a positive air seal between firing hood and kiln. Temperature inside kiln is not decreased by infiltration of cold air. Result — *fuel savings!*

A-3566

Get more facts from the A-C representative in your area . . . or send for Rotary Kiln Bulletin 07B6368A. Allis-Chalmers, Milwaukee 1, Wisconsin.

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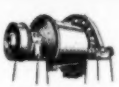
Grinding Mills

Kilns, Coolers, Dryers

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Throughout industry, leading builders and users of virtually every type of mechanical equipment rely on Torrington Bearings for long, trouble-free service under the most exacting operating conditions.

They rely on Torrington Engineers, too, for experienced assistance on design, installation and maintenance problems involving every type of anti-friction bearing. Why not tell us about *your* problem? We'll welcome the opportunity of serving you.

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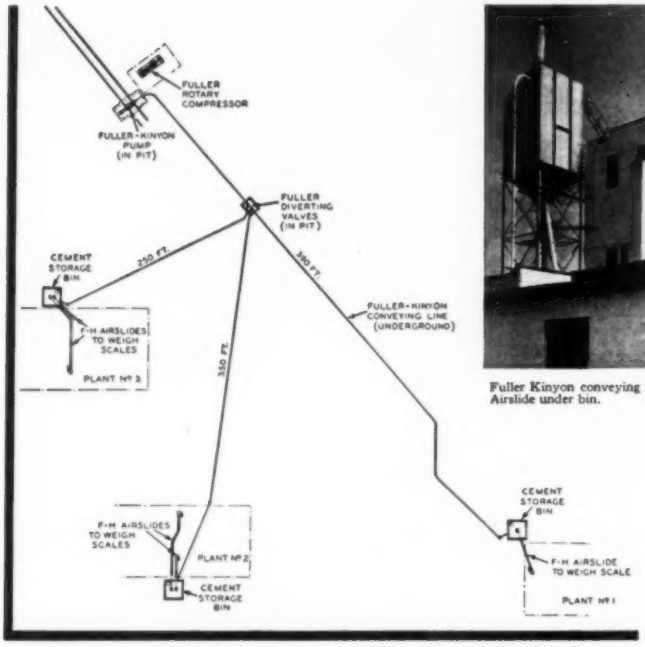


Fuller Kinyon conveying line entering storage bin. Airslide under bin.

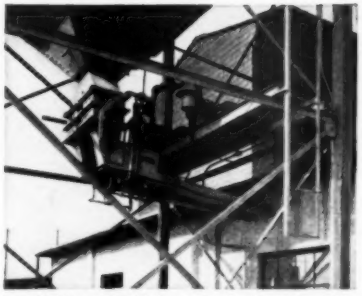
in Paturzo's Concrete-Block Plant

When the engineers of V. Paturzo, Bro. & Son, Inc., Baltimore, Maryland, needed conveying equipment for their large, modern concrete-block plant, they turned to Fuller for suggestions and aid in selecting the most efficient method for handling Portland cement. As a result of studies made, Paturzo has standardized on Fuller equipment wherever possible to do so.

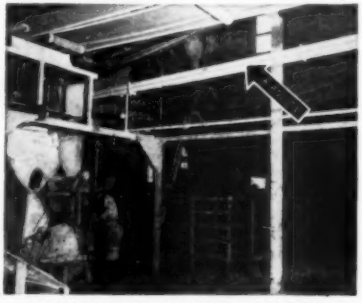
All cement, received in hopper-bottom cars, is conveyed by a Fuller-Kinyon Pump to storage bins in three different locations in the plant. This pump has a capacity of 200 barrels an hour.

And, they didn't stop there . . . they installed F-H Airslides underneath all the bins, for controlled conveying of cement to weigh scales over the mixers. These Airslides, equipped with F-H Airfeeders and F-H air motor-operated cut-off gates, above the scales, give them perfect control of each batch, in addition to clean operation and minimum power consumption.

Why not have our engineers make a survey of your conveying and submit their recommendations, based strictly upon your particular requirements. No obligation, of course.



Two Airslides and Airfeeders conveying from storage bin to weigh scales in plant.



Airslide delivering to weigh scale over mixer in plant.

Fuller

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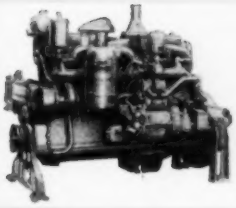
DRY MATERIAL CONVEYING SYSTEMS
COMPRESSORS AND VACUUM PUMPS
FEEDERS AND ASSOCIATED EQUIPMENT

G-64

AND COOLERS •

the power behind the drag



EVERY 40 SECONDS . . . ten hours a day, 26 days a month, 12 months of the year . . . this Northwest Dragline swings 1½ yards of sand and gravel on an excavation job out of Amarillo, Texas.

It takes plenty of steady power to keep a hungry bucket like that going. Western Sand & Gravel Company depends for that power on a D13000 "Caterpillar" Diesel Engine. "Our D13000 has done a splendid job," Company Superintendent P. E. Edwards reports. "Over 5,000 hours of engine operation with little or no repairs."

Five thousand hours—and almost a million tons of sand and gravel moved! "Cat" Diesel Engines are built for two-fisted jobs like that. And smart equipment operators like Superintendent Edwards know they can insure such dependable performance by giving their "Cat" machines the kind of care they deserve.

Good equipment maintenance pays off more today than ever before. So today, more than ever, check wear before it happens. Your Operator's Instruction Book can help you often. And your "Caterpillar" Dealer is always handy. Call on both—they'll keep your machines on the go!

CATERPILLAR
REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

". . . The Head of the Great Rock"

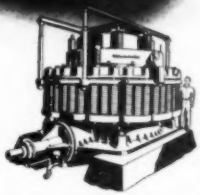
HERE is a bird's-eye view of Penmaenmawr, which means "The Head of the Great Rock", located on the northwest coast of Wales. This dramatic outcrop of igneous rock which forms Penmaenmawr Mountain and the surrounding high land around the town itself, rises abruptly to some 1,400 feet from the edge of the Irish Sea and stands out in marked contrast to the adjoining shore line . . . a familiar mariners' landmark.

Quarries on Penmaenmawr have been worked for over 120 years . . . and it is estimated that there are still 1,000 million tons of stone available for crushing. One company alone is currently producing about 3,000 tons of crushed stone a day . . . and the lion's share of this production passes through five *"SYMONS"* Cone Crushers.

This is just one more example of the leading role that *"SYMONS"* Cone Crushers play in recovering the valuable resources of the earth's surface, in every corner of the globe.

NORDBERG MFG. CO., Milwaukee, Wisconsin

"SYMONS"... A NORDBERG TRADEMARK KNOWN THROUGHOUT THE WORLD



"SYMONS" Cone Crushers . . . the machines that revolutionized crushing practice . . . are built in Standard, Short Head, and Intermediate types, with crushing heads from 22 inches to 7 feet in diameter—in capacities from 6 to 900 tons per hour.

Q152

"SYMONS" Primary Crushers

"SYMONS" Vibrating Bar Grizzlies

"SYMONS" Vibrating Screens

Grinding Mills

Diesel Engines

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EIMCOS . . . BUILT TO LAST

Loading in rough broken rock piles, washes filled with silt and boulders, mines, quarries or sand and gravel pits is all the same with Eimco 104.

These rugged crawler type RockerShovels are built to last. Heavy steel gears and shafts turning in anti-friction bearings make the 104 the easiest machine to operate and the fastest loader on the market.

Its straight forward movement for digging and backward overhead discharge reduces costly maintenance on tracks and rollers.

Loading speed, depending on material handled, will average between 4 and 6 tons per minute.

Write for more information.

You can't beat an Eimco!

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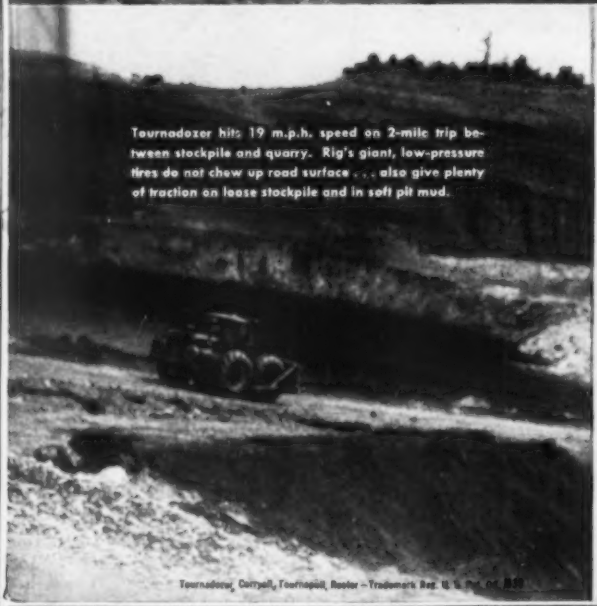


Tournadozer hits 19 m.p.h. speed on 2-mile trip between stockpile and quarry. Rig's giant, low-pressure tires do not chew up road surface . . . also give plenty of traction on loose stockpile and in soft pit mud.

Tournadozer, Carryall, Tournapull, Rooter – Trademarks Reg. U. S. Pat. Off.

for Arkansas

With a lot of small maintenance jobs on stockpiles, along haul roads and around pits . . . often scattered as far as 5 miles apart . . . this prominent Arkansas bauxite mining company is highly enthusiastic over the "work-and-run" performance of their 19 m.p.h., C Tournadozer. All work previously handled by 3 crawler-dozers is now being done with the one mobile, rubber-tired "C". As the Plant Superintendent explains the Tournadozer operation . . . "Mobility is a major factor, due to the large number of scattered small jobs . . . and Tournadozer serves our needs very well."

HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

work of 3 crawlers

Bauxite Mining Company...

Main assignments are cleaning up for a 1½-yd. and a ¾-yd. shovel in the stockpile area . . . and pit clean up of heavy quarry rock around a 2½-yd. stripping shovel. "Spare time" tasks include building levees . . . clearing timber . . . pulling a Rooter . . . towing and pushing trucks up grades and through mud.

Also self-loads gravel with 15-yd. Carryall . . . completes 7-mile cycle in 40 minutes

Tournadozer is also occasionally used with a LeTourneau 15-yard LP Carryall Scraper to load, haul and spread gravel surfacing material on the mine's road system . . . helping replace about 2,000 yds. of surfacing per mile per year. Timed on a typical 3½-mile one-way haul, the Tournadozer-Carryall team averages 1½ loads an hour. This same outfit also works with a D Tournapull on road-building . . . push-loading the "D", and self-loading the Scraper.

You'll be surprised at the extra jobs you can handle per day and the extra production you can get per hour, with one of these high-speed, rubber-tired C Tournadozers. Call your LeTourneau Distributor for complete facts.

R. G. LeTOURNEAU, INC.
PEORIA, ILLINOIS

LeTOURNEAU LET EQUIPMENT

"Let the shovel go . . . but hang on to that DIPPER"

When the preference for an Amsco Dipper is so strong that a superintendent at one of Minnesota's largest iron mines quietly removes it from a shovel being shipped to another mine, there are apt to be some good performance reasons why!

The superintendent reported that this AMSCO 6½ yard renewable lip dipper *loaded a record number of tons per 8 hour shift*—more than had ever been loaded before. And, where other dippers needed repairs every 2 months or so, it is still going strong after 6 months of service with no repairs of any kind!

Better design and construction are the reasons for this high production and longer, uninterrupted service. The wide mouth and shallow depth permit faster, easier digging and loading, and a 4-way taper insures clean dumping every time.

And, this dipper is *all-cast*—of tough, work-hardening AMSCO Manganese Steel. The renewable lip and heel plate, when finally worn, are replaceable in a matter of minutes.

Dippers can—and should be—bought with an eye to higher digging efficiency and lower costs per ton . . . and the moral of this actual on-the-job example is clear . . .

WHEREVER YOU MEET A PROBLEM OF WEAR CAUSED BY IMPACT AND/OR ABRASION . . .

. . . find out about longer-lasting, dollar-saving Manganese Steel Dippers made by AMSCO . . . world's largest producer of manganese steel castings for all industry.

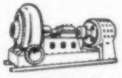
AMSCO controls impact and abrasive wear in 5 basic industrial operations:

Power Transmission

Mining and Excavating

Transportation

Crushing and Pulverizing



Materials Handling

Brake Shoe **AMERICAN MANGANESE STEEL DIVISION**

396 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que.
Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

IN THE PIT! IN THE PLANT!

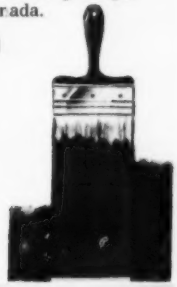
save your rustable metal surfaces indoors and out!

STOP RUST! with RUST-OLEUM

Protect Your Equipment, Pipes, Conveyors, Crushers, Dusters, Metal Structures, Tanks, etc.

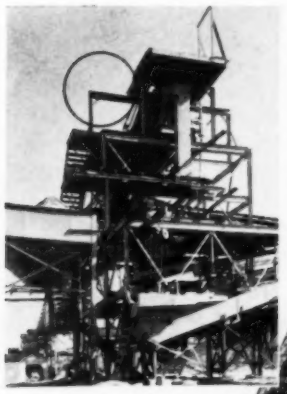
RUST-OLEUM can do a whale of a job for you in helping to resist fumes, dust, rain, snow, moisture, and weathering! So easy to apply that *one man* often does the work of two – just wirebrush and scrape with sharp scrapers to remove rust scale and loose particles – then apply by brush, dip, or spray directly over remaining rust! Costly sandblasting and chemical pre-cleaning are not usually required. You save time, labor, money – you beautify as you protect because RUST-OLEUM is available in all colors, aluminum and white! Get the facts today. Prompt delivery from Industrial Distributors in principal cities in the United States and Canada.

RUST-OLEUM CORPORATION
2716 Oakton Street, Evanston, Illinois



May be applied directly over rusted surfaces

Available in all Colors, Aluminum and White



Look for this label – be sure it's genuine RUST-OLEUM

CLIP THIS TO YOUR LETTERHEAD

Mail To: Rust-Oleum Corporation
2716 Oakton Street,
Evanston, Illinois

RUST-OLEUM STOPS RUST!

- ☐ Have A Qualified Representative Call
- ☐ Full Details On Free Survey
- ☐ Complete Literature
- ☐ Nearest RUST-OLEUM Source

"EUCS" Are Your Best Bet!

FOR BIG LOADS

FOR LONG HAULS

FOR SHORT HAULS

FOR LASTING STRENGTH

Because of their rugged construction and dependable performance, Rear-Dump Euclids are standard equipment on hundreds of mine, quarry, and construction jobs. For moving rock, ore, overburden and other heavy excavation, "Eucs" have the capacity and speed to haul bigger loads faster and at lower cost per ton or yard moved.

Look at the record! Of the thousands built, nine out of eleven Euclids are still in use today! They're job proved... have earned their reputation for staying power, low-cost production and efficient operation on a wide range of work.

Owners know from experience that they can depend on prompt, efficient service from Euclid's world-wide distributor organization.

Euclids are your best bet for more loads per hour and more profit per load. Write for information on the complete line of Euclid equipment, or call your Euclid Distributor today.

The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO

EUCLIDS

"one-ox-power" . .

was used by the Egyptians for grinding fine lime centuries ago. But time and research have greatly advanced the industry from the stone grinding wheel of its early days.

Traylor builds superior mills for wet or dry, coarse or fine grinding. Write for information on any of these types: Ball, Rod, Compartment, Tube, Ball Tube and Pebble Mills.

THE GREATEST ADVANCE in grinding mill design has come in the past 50 years. During that time, Traylor has been a major contributor to the development and construction of better grinding machinery to meet each varied and specialized need. Traylor has always worked closely with the men in the stone and cement industry . . . *first* learning what they needed, then building a machine "Traylor-made" for the job. Experience was, is and always shall be the deciding factor in the development and production of the most efficient grinding machinery. Traylor has experience . . . half a century of it.

Traylor

ENGINEERING & MANUFACTURING CO.

436 MILL ST., ALLENTOWN, PA.

Sales Offices: New York • Chicago • Los Angeles
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P. Q.

A TRAYLOR LEADS TO GREATER PROFITS

increases hourly yardage output over 10% with Koehring *fast-shuttling* DUMPTORS

THERE is no need to turn at the loading unit, along narrow haul roads, or on the fill with fast-shuttling 6-yard Dumptors. Koehring constant-mesh transmission gives the same 3 fast speeds forward and reverse, lets Dumptors operate with equal ease in both directions. Every turn saved cuts 15 seconds off your cycle time, and adds up to an important increase in yards hauled per hour. Here's a typical example:

On a 1,000-foot haul, eliminating only 2 turns saves ½ minute every round trip. Where you would get an average of 13.6 trips per hour with 2-turn operation, Dumptor *no-turn shuttle hauling* gives you 15.4 trips — an increase of 1.8 trips an hour on the same 1,000-foot haul.

Fast, easy spotting and 1-second gravity dump help keep production high. Costs stay low because there are no complicated, mechanical body hoists to slow up haul cycles — no expensive hoist maintenance or down time to eat into your profits. Let your Koehring distributor show you Dumptor's many other cost-cutting advantages.

KOEHRING COMPANY, Milwaukee 16, Wis.
Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

KOEHRING DUMPTOR®

This mountain-side job shows typical one-turn shuttle advantage. Hauling along narrow ledge, Dumpster spots close to Koehring 1½-yd. 605, gets its load, drives to fill, dumps, returns to shovel — without turning.

all welded . . . PORTABLE

FOR TRANSIT-MIX • CENTRAL-MIX • CONCRETE PRODUCTS

Quickly moved to reduce haul distance of mixed concrete, Johnson Transit-Mix Plant has all-welded, easily-assembled units. Its portable-section Tandem Bin minimizes field bolting . . . dismantling, erecting take less than half the time required for moving a bolted plant. All sections are easy-handling width . . . 11' or under. 7 bin sizes from 55 to 210 cu. yds. can be arranged for 2, 3 or 4 aggregates. Central cement compartment holds 61 to 185 bbls. Check its flexibility for transit-mix, central-mix or concrete products operation. See your Johnson distributor, or write us for complete facts.

JOHNSON CLAMSHELLS HANDLE EXTRA TONNAGE *because:*

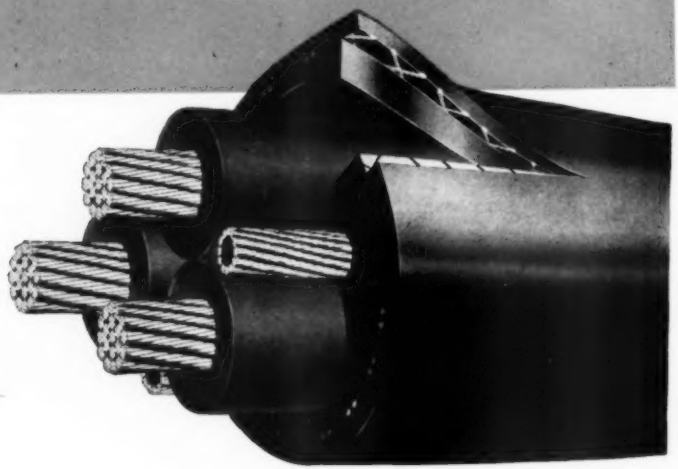
- Large diameter sheaves, with fully sealed needle bearings, reduce friction power loss, deliver full power to cutting lips.
- All-welded construction improves bucket balance, lowers center of gravity, lets teeth dig in straight and deep for capacity load in any material.
- Hard manganese cutting edge, welded to lips, gets tougher with use, assures long life.
- 10 sizes . . . ⅛ to 3 yards . . . General Purpose, Wide Rehandling and Heavy-Duty Digging types. Write for new catalog.

B13

(Koehring Subsidiary) **C. S. JOHNSON CO.** CHAMPAIGN, ILLINOIS

Here's your mine cable insulated with COLD RUBBER

Another big improvement in Securityflex 600-V Mine Cable



*Cold rubber is firmer and tougher and less permeable. It gives this new and better Type G Securityflex** **much more moisture resistance**
much more compression resistance
much more cut resistance

That means longer cable life, fewer power interruptions, less maintenance trouble, *much more value for your money.*

Also – the famous Anaconda patented rubber-cored grounding wires are non-kinking and cushioned in a larger diameter that won't cut insulation.

This means far more dependable and efficient grounding. When the cable twists in service the grounding wires are protected. Every wire in every strand is firmly supported and cushioned. There'll be fewer failures, fewer splices, less production loss, less expense.

Investigate this cable. See it. Call your nearest Anaconda Sales Office or Anaconda Distributor. Anaconda Wire & Cable Company, 25 Broadway, New York 4, New York.

52315

*Trademark

the right cable for the job ANACONDA® WIRE AND CABLE

Practical Assistance

Whether it's getting out of a fishing tackle tangle, or unsnarling a lubrication snag in your quarry operation . . . practical assistance, the kind that gets you off the hook fast, is the thing you look for most.

And ***PRACTICAL TECHNICAL ASSISTANCE*** is a Cities Service specialty.

Cities Service Lubrication Engineers can offer every quarry operation practical assistance that will mean dollars, man-hours and equipment saved. They're specialists in the industry's most effective lubricating practices. What's more, they offer the most complete line of quality lubricants.

but check for yourself.

✔ Check on the high quality of all Cities Service lubricants. Ask critical users. Or better still, test them on the job.

✔ Check the complete Cities Service line for the correct lubricant for every need. Deliveries are quick, and dependable.

✔ And finally, discuss your problems with a Cities Service Lubrication Engineer . . . he's probably solved many like them for other quarry operations. Write, or phone CITIES SERVICE OIL COMPANY, Dep't. B21, Sixty Wall Tower, New York City 5 . . . or get in touch with the office nearest you.

CITIES SERVICE

Only the Timken Company offers all 3 rock bit types...

and a complete rock bit engineering service!

IF you want to get the best bit for your particular job, go to the Timken Company—the only manufacturer who makes *all three* types of rock bits:

1 **MULTI-USE.** Gives lowest cost per foot of hole when full increments of drill steel can be drilled and when control and reconditioning of bits are correct.

2 **CARBIDE INSERT.** For drilling extremely hard and abrasive ground, smaller holes, extra deep holes. Holes go down faster, bit reconditioning is minimized.

3 **ONE-USE "SPIRALOCK".** To use where reconditioning is not feasible—where circuit control of bits is difficult or impossible. Gives lowest unit cost of the three. "Spiralock" union holds bit on dependably, permits easy removal.

Because the Timken Company makes all 3 rock bit types and can make unbiased recommendations to meet your drilling needs, it offers the only *complete* rock bit engineering service. Backed by 20 years' experience in solving rock bit problems, our rock bit engineers will give you the bit performance you're after, whether you're looking for lowest bit cost, lowest cost per foot drilled, greatest possible drilling speed, or any other desired advantage.

FREE BOOKLET! Packed with helpful information. Shows full line of bits. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

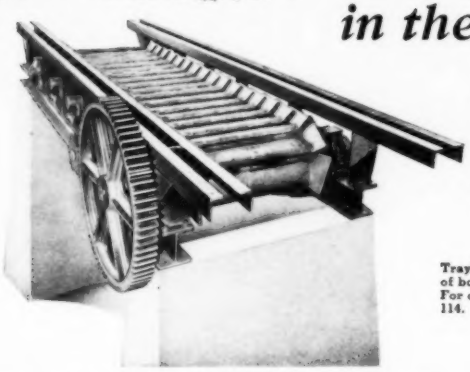
TIMKEN

TRADE-MARKS REG. U. S. PAT. OFF.

... your best bet for the best bit... for every job

in the good old days...

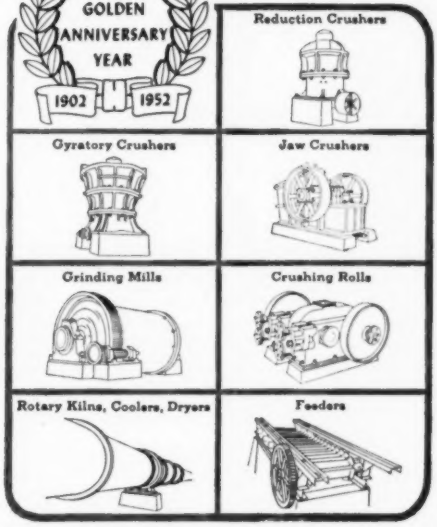
the "paved" road ended a few feet outside of town. At the whim of the weather, travelers "ate dust" or bogged down in axle-deep mud. Today, over 3 million miles of paved road leads us smoothly wherever we wish to go.



Traylor Apron Feeders will increase production of both primary and secondary crushers 50%. For complete details, ask for Traylor Bulletin 114.

AS OUR ROAD SYSTEM spread with the growth of our nation, the need grew for increased production of aggregate—foundation of the modern highway. For 50 years, Traylor has been a leader in providing the stone products industry with new and more efficient stone crushing machinery to keep pace with the need for increased production. Now, and in the future, you can rely on Traylor's growing fund of experience to provide the machinery that will help you do your job better.

OUR GOLDEN ANNIVERSARY YEAR 1902 1952



Traylor

ENGINEERING & MANUFACTURING CO.

446 MILL ST., ALLENTOWN, PA.

Sales Offices: New York • Chicago • Los Angeles
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P. Q.

A TRAYLOR LEADS TO GREATER PROFITS

Barber-

MODEL 374

HEAVY-DUTY LONG-REACH PORTABLE CONVEYOR

ONE MAN

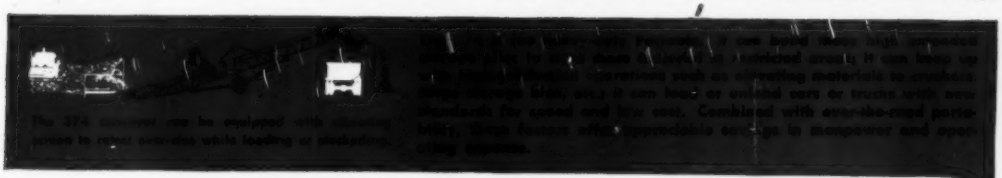
high-capacity loading, unloading, stockpiling of all bulk materials

Here is a pneumatic-tired portable conveyor with capacities from 150 to over 425 tons per hour. The B-G 374 can be towed from job to job, pile to pile, and has all the flexibility in use of smaller portable conveyors. It is built for heaviest service, yet one man can operate it to load, stockpile and unload far more tonnage per day than with any other truly portable conveyor. The 374 will handle sand, stone, wet concrete, coal—any bulk material—at a cost so low that every aggregate producer, contractor, City, County or State Highway Department handling large quantities of materials, should get the full details now on this new heavy-duty machine.

see your BG distributor

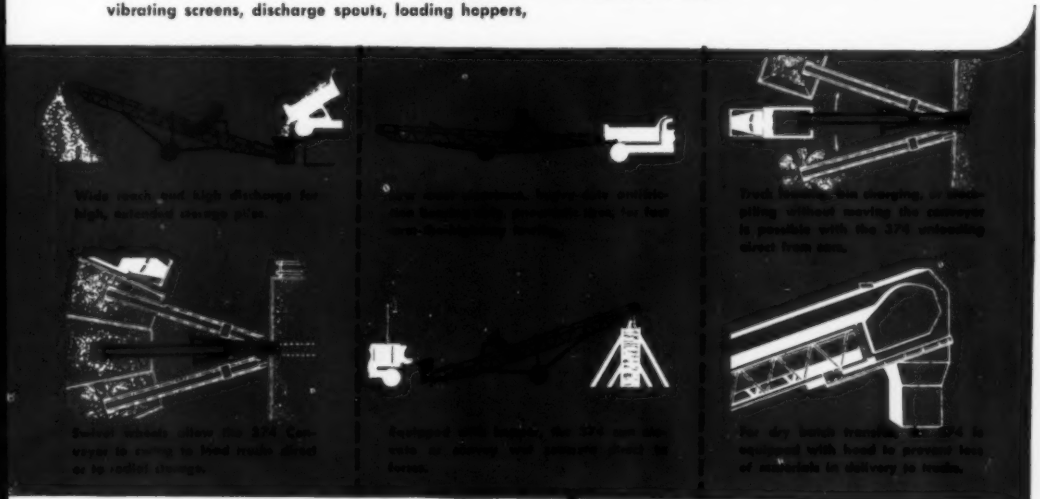
Greene

150 to 425 TONS/HOUR



VERSATILE...

Here are a few examples of what the 374 Conveyor, with its complete line of accessories, including feeders, vibrating screens, discharge spouts, loading hoppers, etc., can do for you in your heavy-duty bulk material handling operations.



send coupon for details

Available in belt widths of 18", 24" and 30", in lengths from 30' to 60', the 374 can be invaluable to you in these days of restricted manpower and the need for high production operations. Fill in and send this coupon for your copy of the 374 Bulletin.

BARBER-GREENE COMPANY
AURORA, ILLINOIS, U. S. A.

Barber-Greene Company
Aurora, Illinois

( ) Send bulletin on 374 Conveyor.

( ) Have representative call.

Name .....

Firm Name .....

Address .....

City ..... State .....

WIRE ROPE

This is the most economical rope we've ever made for quarries

ROEBLING is the best known name in wire rope. That's partly because we were the first wire rope maker in America. But more than that, we've always led in developing better wire and better rope for every purpose.

Today's Roebling Preformed "Blue Center" Steel Wire Rope is the quarryman's best choice for efficiency and long life. This rope has *extra* resistance to crushing and abrasion . . . stands up under rough going. It saves you time and cuts costs.

There's a Roebling wire rope of the right specification for top service on any job. Call on your Roebling Field Man for his recommendations. John A. Roebling's Sons Company, Trenton 2, New Jersey.

ROEBLING

ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 701 ST. CLAIR AVE., N. E. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, TRENTON 2, N. J.

"Better in every way"

Says Frank Casilio about new pre-mix setup with Worthington Big Mixer

FRANK CASILIO, President of Frank Casilio and Sons, Bethlehem, Pa., ready-mix concrete producers, Fernando Casilio, Plant Manager, Joanne Casilio, Business Manager.

Output is *up* 35%, hauling time, truck maintenance and fuel consumption are down, at new Bethlehem, Pa., plant of Frank Casilio and Sons.

According to Frank Casilio, president of this ready-mix company, they *had* to modernize plant facilities to keep up with a constantly increasing business. So in 1949 the Casilio Company set to work to replace their existing transit-mix setup so as to increase output without sacrificing a reputation of unexcelled quality.

The resulting pre-mix installation—a model of efficiency—was achieved with the help of batching specialists and Worthington engineers. New facilities include a 2 yd Worthington Big Mixer, a fully automatic Worthington Water System, and 15 Worthington Hi-Up Truck Mixers.

Write for further data on Worthington Big Mixers and other Blue Brutes that can boost your plant's output and efficiency. Worthington Pump and Machinery Corporation, Construction Equipment Division, Dunellen, New Jersey.

"A MODEL OF COMPACTNESS AND EFFICIENCY." That's what construction people call this modern Casilio pre-mix plant at Bethlehem, Pa. All controls are situated within a 6-foot radius including those for the Worthington Big Mixer which charges or discharges in 12 seconds. Production's up over 30% with same haulage units—15 Hi-Up Truck Mixers like one in foreground.

MARKY JOSEPH, CASILIO'S BATCHMAN, weighs sand and stone on beam scales. Cement is weighed for batch by electric control. The fully automatic Worthington water system at right is equipped with leakproof poppet valves and protected measuring device.

R.2.3

If It's A Construction Job, It's A **BLUE BRUTE** Job

WORTHINGTON

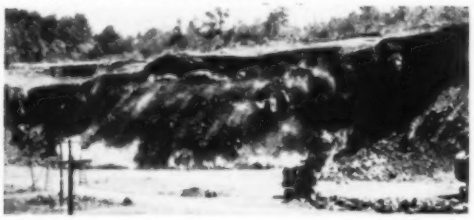
Construction Equipment

1. *Ready for the shot. Detonation from bottom of eight well-drill holes.*

2. *Face starts to move out. Toe coming first.*

3. *Explosive force at work producing maximum fragmentation.*

4. *The peak of the blast. No wild flying rocks.*



5. *The broken rock begins to fall.*

Proof from the machine gun camera!

ROCKMASTER Blasting Makes the Most of Explosives Energy

Here you see no geysering gases . . . no wildly flying rock. ROCKMASTER blasting keeps the power of explosives confined where it can do a *real* job on the rock!

These machine gun camera photos—snapped at the rate of three-a-second at the Millington, N.J., operation of the North Jersey Quarry Co.—prove ROCKMASTER milli-second blasting gives control over explosives force, breakage, and throw never before possible.

Ask your Atlas representative to show you the picture presentation of the ROCKMASTER story. See through the eye of the machine gun camera how *you* can profit by using the correct numbers of the *16* ROCKMASTER milli-second delay detonators teamed with the ROCKMASTER system of explosives choice and loading methods.

6. *The well-broken rock spreads out.*

7. *Here's a rock pile ready for the shovel. Note lack of back break.*

ROCKMASTER: Reg. U. S. Pat. Off.

ATLAS EXPLOSIVES *"Everything for Blasting"*

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington, Del. • *Offices in principal cities* • *Cable Address—Atpowco*

give your truck engines a chance to perform at their best!

These Exclusive Eaton Features Keep Trucks on the Job, Reduce Upkeep, Add Thousands of Miles to Axle Life—

- **PLANETARY GEARING**
- **FORCED-FLOW LUBRICATION**

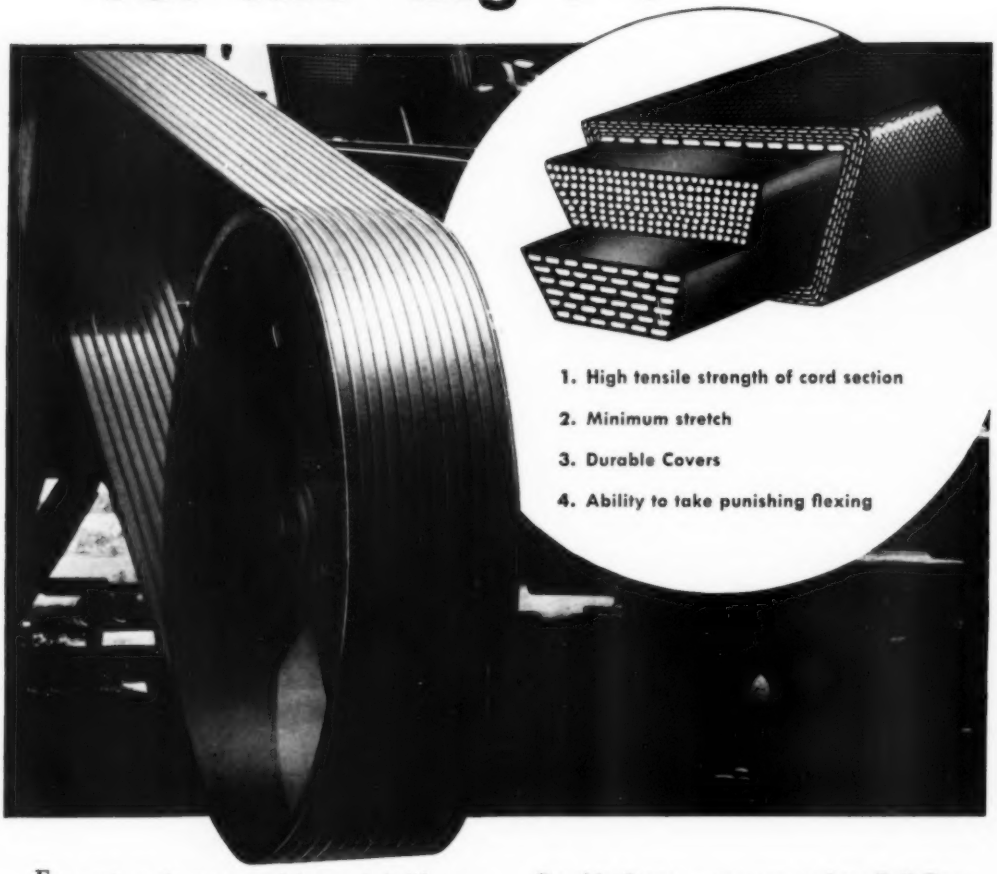
SPECIFY Eaton 2-Speed Axles; they double the conventional number of gear ratios, enabling drivers to select a ratio for pulling power or speed, a ratio best suited to road and load conditions. This permits engines to operate in their most efficient and economical speed range, cuts gas and oil consumption. It reduces stress and wear on engine and power transmitting parts, holds maintenance time and cost to a minimum, adds thousands of miles to engine and over-all vehicle life. Your dealer will explain how Eaton 2-Speed Axles will help your trucks haul more, faster, at lower cost. They pay for themselves over and over, and give trucks materially higher trade-in value.

Axle Division
EATON MANUFACTURING COMPANY
CLEVELAND, OHIO

EATON
2-Speed Truck
AXLES

PRODUCTS: Sodium Cooled, Poppet, and Free Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Rotor Pumps • Motor Truck Axles • Permanent Mold Gray Iron Castings • Heater-Defroster Units • Snap Rings Springtites • Spring Washers • Cold Drawn Steel • Stampings • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

Look to Bull Dog V-Belts for the "Big 4"!



For peak performance and longer belt life, you need *all four* — and *you get all four* with Bull Dog V-Belts.

First, let's look at the BWH Cord Section. It's specially engineered for high tensile strength. That's the only safe way a belt builder can provide and you can obtain the superior load carrying capacity you want. (Also the stamina to absorb shock loads.)

Secondly, Minimum Stretch. Stretch may be desirable in a girdle but not in a V-Belt — if you want less slippage, fewer adjustments, extra belt life!

Durable Covers — you can *see* how Bull Dog covers stand up! Closely woven, heavy, bias-cut fabric is used to take the severe wearing action where belt and sheave meet. Result: longer wear and sealing against penetration of dirt, grease, moisture.

Last, ability to take heavy flexing is no problem with Bull Dog V-Belts. Compounds are *quality-controlled* for cooler running. They *won't* break down or deteriorate.

TOUGH PROBLEMS INVITED — Ask your nearest BWH distributor about your V-Belt, transmission belting, conveyor belting and hose problems. He's a *specialist!* Or write us direct about how to make rubber products work *better, longer.*

BWH — DEPENDABLE RUGGEDNESS

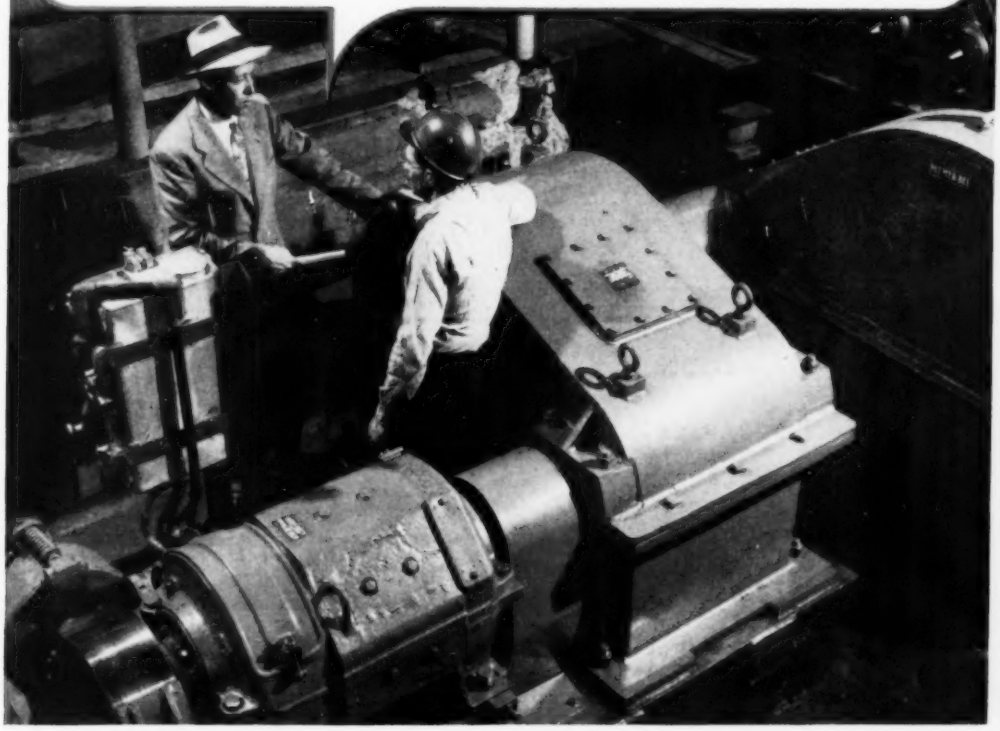
Another Quality Product of

BOSTON WOVEN HOSE & RUBBER COMPANY

Warehouse Stock: 111 N. Canal St., Chicago, Illinois **Distributors in all Principal Cities**

PLANT: CAMBRIDGE, MASS. • P. O. BOX 1071, BOSTON 3, MASS., U. S. A.

For better protection of gears and drives -GULF E.P. LUBRICANTS



All the desirable properties of extreme pressure lubricants are combined in Gulf E. P. Lubricants to insure longer gear and bearing life, and lower maintenance costs for most types of gear drives.

Gulf E. P. Lubricants are specially compounded to withstand the shock loads and high pressures encountered in the toughest service, but are equally effective for all types of industrial gears, including spur, helical, bevel, spiral, worm, and hypoid gears. They prevent metal-to-metal contact and excessive wear, keep maintenance costs low.

They are outstanding in their ability to separate from water. When the proper grade is used and good maintenance practice is employed, most lubrication difficulties caused by water can be avoided.

Other advantages: nonfoaming—saves loss of lubricant and mopping up; tenacious—minimizes throwoff; extremely stable for this type of lubricant; help prevent rust; and they are just as suitable for the lubrication of all types of bearings.

Gulf E. P. Lubricants are available in the proper viscosity for every gear requirement, ranging from 55 to 1050 S.U.V. at 210°F. For specific recommendations for your equipment, call in a Gulf Lubrication Engineer today. Write, wire, or phone your nearest Gulf office, or send the coupon below.

GULF INDUSTRIAL LUBRICATION

Gulf Oil Corporation · Gulf Refining Company PQ
719 Gulf Building, Pittsburgh 30, Pa.

Please send me, without obligation, a copy of your pamphlet "Gulf E. P. Lubricants."

Name .....

Company .....

Title .....

Address .....

TELSMITH®

NEW Tyrone Rock Products Co. plant PRODUCES 3000 TONS A DAY at low cost...with TELSMITH Conveying and Screening Equipment

TELSMITH Equipment in this Plant

One (1) 5′ x 12′ Pulsator Single Deck Scalping Screen

One (1) 5′ x 12′ Pulsator Double Deck Scalping Screen

One (1) 4′ x 10′ Pulsator Double Deck Rinsing Screen

Eight (8) 5′ x 12′ Vibro-King Single Deck Finishing Screens

Two (2) 4′ x 10′ Vibro-King Single Deck Finishing Screens

Twelve (12) Telsmith-BG Conveyors 18″ to 42″ wide, 42′ to 200′ long

Fifteen (15) 16″ x 18″ Bin Gates Boquad Tunnel Type

• To serve the rapidly growing Atlanta market, this modern plant at Tyrone, Ga., is a remarkably efficient, low-cost operation. Designed and engineered by Telsmith, its average capacity is about 300 tons per hour with peaks of 450 tons. Highly efficient screening is supplied by 13 Telsmith vibrating screens making 8 sizes of crushed granite (−2″ to −8 mesh) for railroad ballast, and concrete and asphalt construction.

Finished sizes are stockpiled over a reclaiming tunnel, then rinsed and delivered to bins for loading cars and trucks. Telsmith did all engineering, including detailed drawings, furnished all screens and conveyors and carefully co-ordinated all equipment for smooth, efficient operation. To relieve yourself of technical details and to be sure of satisfactory results, consult Telsmith without obligation. Send for Bulletin 266.

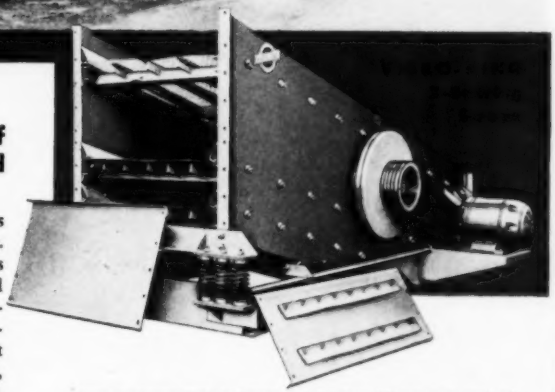
SMITH ENGINEERING WORKS
504 EAST CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

ENGINEERED

VIBRO-KING

For Finished Screening of Medium and Small Sized Aggregate

With its two bearings, the Vibro-King is simpler, more efficient, and upkeep is lower. Telsmith-patented automatic counter-weights assure smooth starting and stopping as well as exceptionally smooth operation. Its circular screening movement is uniform everywhere on the screen cloth, and is constant under any load. Entire vibrating mechanism, including vibrating unit and screen cloth, floats on nests of springs. Welded and reinforced main frame is *horizontal* for rigidity and easy installation. Cable suspension, if desired. Five sizes, 1, 2, or 3 decks.



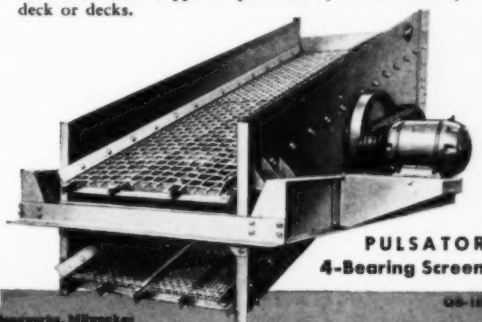
Changing Screen Cloth is Simple and Quick — The upper end of the Vibro-King is readily removable, making it a much easier job to change screen cloth and saving a great deal of time.

Screen Cloth Mounting—At customer's option — screen cloth may be mounted in rubber on steel screen trays; or stretched over steel screen supports—protected by rubber—on any deck or decks.

PULSATOR

For Heavy-Duty Scalping

A four-bearing, heavy-duty vibrator . . . for all kinds of screening, especially scalping, or large sized aggregate . . . Pulsator's circular movement gives uniform, efficient screening on all decks and under heaviest loads. The best alloy steels, the finest anti-friction bearings, protected by both labyrinth and piston ring seals, give longer life and lower upkeep. Eleven sizes, with 1, 2, or 3 decks.



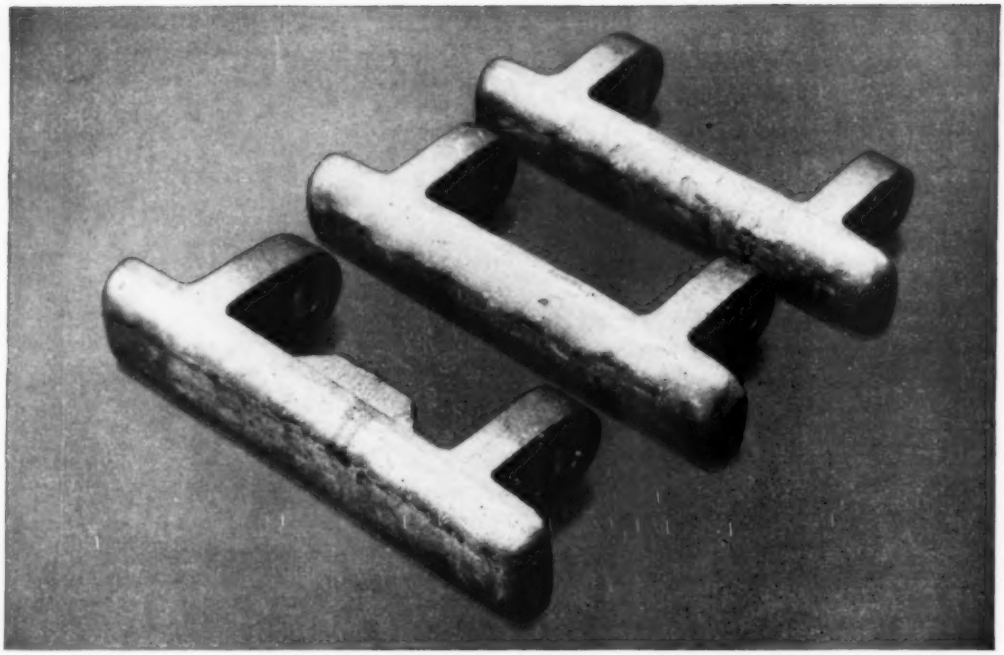
PULSATOR
4-Bearing Screen

Q6-11

Cable Address: Telsmith, Milwaukee

51 East 42nd St. New York 17, N.Y. | 211 W. Wacker Drive Chicago 6, Ill. | 715 Commercial Trust Bldg. Philadelphia 2, Pa. | 238 Main Street Cambridge 42, Mass. | Beelick Equip. Co. Milwaukee 3, Wis. | A. N. Wigle, 284-6 N. Roosevelt Ct. Columbus 6, Ohio

Clyde Equipment Co., Portland 9, Ore., & Seattle 4, Wash. • Minco Eng. & Equip. Co., San Francisco 4, Calif. • Interstate Equipment Co., Statesville, N. C. • Rish Equip. Co., Charleston 22, & Clarksburg, W. Va.—Reserve 7, & Richmond 16, Va. • Wilson-Wooster-Wilkinson Co., Knoxville 8, & Nashville 6, Tenn.



LIMESTONE TONNAGE INCREASED 5 TIMES

by Rebuilding Mill Hammers with Coast Metals Hard-Facing

CM-115 hard-facing welding rod increases hammer life 5 to 1 at 1/3 their cost

These three saddle type reversible manganese steel hammers are used in an Eagle Hammer Mill at the Tarbox McCall Stone Company, Findlay, Ohio to crush dolomitic limestone. Production capacity of this mill is 35 tons per hour. The hammers illustrated have just been removed from the mill for their fourth refacing.

Prior to hard-facing with CM-115, a new set of hammers, costing $23.50 each, produced a total of 1,200 tons of stone. This was accomplished by using both sides of the reversible faces. The average grinding efficiency of the rapidly wearing hammers was calculated at 20 tons per hour.

This set of worn hammers was rebuilt with 5½ lbs. of Coast Metals 115 hard-facing welding rod at a total cost of $20.05, including material, welding costs and installation. Hard-facing was applied to one edge of the hammers only.

They were returned to service and produced 6,000 tons of stone at full capacity of 35 tons per hour. This performance is repeated an indefinite number of times, and with each hard-facing, the rebuilt hammers produce 5 times the tonnage at less than ⅓ the cost.

Holding down production and maintenance costs has never been so important as it is today. So don't *replace—reface* with CM specialized welding rods. You'll not only keep production running smoothly, but save money. We shall be glad to make recommendations based upon your particular needs.

COAST METALS, Inc.

Little Ferry, N. J.

COAST METALS (CANADA), LTD., Hamilton, Ontario

PRODUCERS OF SPECIAL HARD-FACING ALLOYS FOR THE ROCK PRODUCTS INDUSTRY

Points worth remembering about truck power

What's the percentage in trying to lug heavy loads with a truck that's just a loafer at heart? You need a high-powered hauler with plenty of brawn to walk away with the load and drag of rugged rock product hauling.

That's why Dodge "*Job-Rated*" trucks are *your* kind of trucks. Dodge engineers build 'em the way you want 'em—to fit your job to a "T" and to overpower a hefty payload with extra hustle and drive!

Under the hood there's a husky high-compression power plant with plenty of might to pull massive loads of rock, stone, gravel or sand over the miles. And Dodge scores high on long life and economy with extra values like exhaust valve seat inserts, chrome-plated top piston rings and twin carburetion and exhaust systems!

You can really pile on the payloads, too, thanks to the broad-beamed frame . . . stout, sturdy axles . . . better weight distribution.

Why not check with your nearby Dodge dealer for the complete story on powerful Dodge "*Job-Rated*" trucks? Then put one to work on *your* job—and watch it take heavy loads in stride!

DODGE "Job-Rated" TRUCKS

HIGHER PRODUCTION at HY-ROCK

Two International TD-6s help increase production 300% for Indiana quarry

G. W. Bowen, president, Hy-Rock Products Company, Marengo, Indiana, was worried that his TD-6 would be too small for the job when he bought it in 1946.

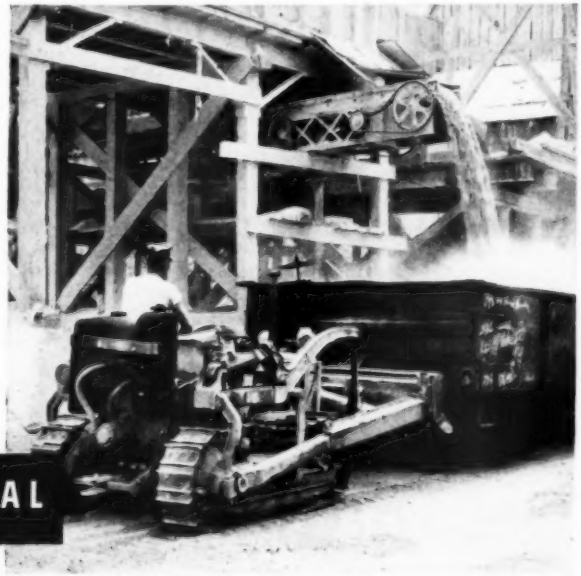
But he isn't worried now—and he has two TD-6s working for him.

On the go 48 to 52 hours a week, these two Internationals have helped Hy-Rock increase production 300 per cent, to 170,000 tons per year. They handle every heavy job on the surface and dig out limestone a quarter-mile underground.

Want to know more about how International power can help raise your production and lower your costs? See your International Industrial Distributor for the full performance story. Look over his big parts department and his factory-designed service plant. You'll understand why more and more mine and quarry operators are equipping with International for the "Power that Pays."

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

ONLY ACTIVE UNDERGROUND LIMESTONE MINE in Indiana. International TD-6 crawler works a quarter mile underground at Hy-Rock quarry.



TD-6 TURNS LOCOMOTIVE. This rugged little International bosses from one to nine loaded railway cars in addition to handling a host of other jobs below and above the ground.

INTERNATIONAL

INTERNATIONAL HARVESTER

POWER THAT PAYS

ONE SIMPLICITY FINISHING SCREEN HELPS PRODUCE 1500 CUBIC YARDS OF RAILROAD BALLAST DAILY FOR MORRIS KNUDSEN CO., INC.

See the new simpli-flo screen and as-a-veyor type feeder in operation at National Sand & Gravel and National Crushed Stone Expositions in Chicago— Stevens Hotel Booths 95-6-7

When Morris Knudsen Co., Inc., one of the nation's largest contractors, goes into the production of a new rock products commodity, there's usually some pretty fine equipment on the job. So it's not surprising to find a Simplicity Finishing Screen at work in their new Blaisdell, North Dakota, plant for the production of gravel railroad ballast. This plant produces over 1500 cubic yards of finished ballast every day, using a 4' x 14' Simplicity Triple Deck Screen to screen out plus 1½" material for return to the crusher and also to size and separate the minus 1½" to plus ¼" product. Simplicity equipment can improve your operations, too. Write today for full facts.

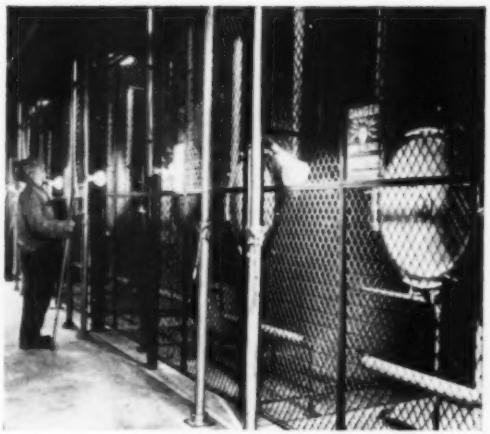
110

Sales representatives in all parts of the U.S.A.
FOR CANADA: Canadian Bridge Engineering Company Ltd., Walkerville, Ontario
FOR EXPORT: Brown and Sites 50 Church Street, New York 7, N. Y.

Simplicity
TRADE MARK REGISTERED
ENGINEERING COMPANY • DURAND, MICHIGAN

REDUCE CEMENT

Modernize electrically with efficient dust-recovery systems—to increase cement output, cut plant cleaning costs, improve community relations!



1. **Modern electrostatic precipitation system** at this Eastern cement plant—rated for 490,000 cubic feet of stack gas per minute—comprises 6 units or TB sections, each with its own high-voltage rectifier and transformer enclosed in individual wire cages. Shown here are six of the cages.

2. **Inside each of the cages,** the mechanical rectifier is driven by a G-E induction motor and power is supplied to the precipitator through a G-E, 25-kva, 75,000-volt secondary transformer, in service for many years. Equipment in each cage is grounded out when operator enters.

Here is one of today's biggest opportunities to increase cement output—and at the same time improve community relations through the elimination of nuisance caused by airborne dust. With modern precipitation equipment—mechanical or electrostatic or both—you can profitably recover daily many barrels of cement dust that would otherwise be lost, and reduce plant-cleaning costs as well.

Better engineering means better performance. While General Electric does not manufacture complete precipitation equipment, it does work closely with precipitation manufacturers in building the needed electric equipment. And G.E. has played a part in development of the process almost since its beginning. That means—when you specify G-E power equipment for your precipitation apparatus—you're assured of experienced engineering and greater reliability of performance.

Whatever your dust-recovery system requires, your G-E representative can offer many cost-saving recommendations. Call him at your nearest G-E office, and meanwhile send for Bulletin GEA-5212 that tells the whole story on electrostatic precipitation. *General Electric Company, Schenectady 5, New York.*

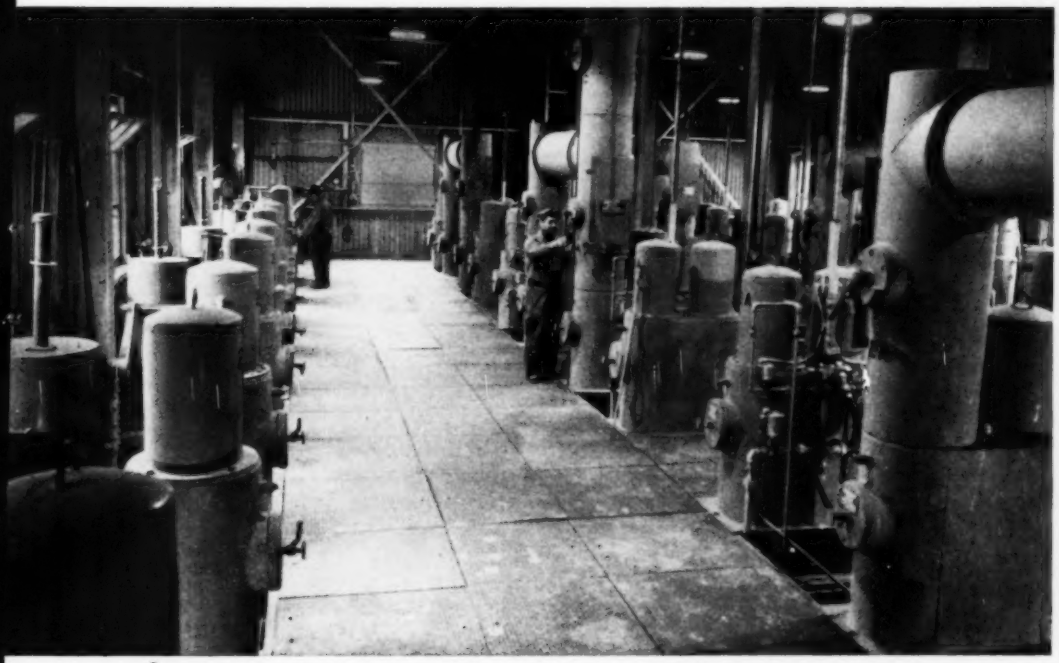
***New G-E Motor Selection and Application Course,** a "More Power to America" program, can give your workers more motor "know-how" in 9 easy-to-take lessons. For details, send for Bulletin GEA-4938-16.*

You can put your confidence in—

GENERAL ELECTRIC

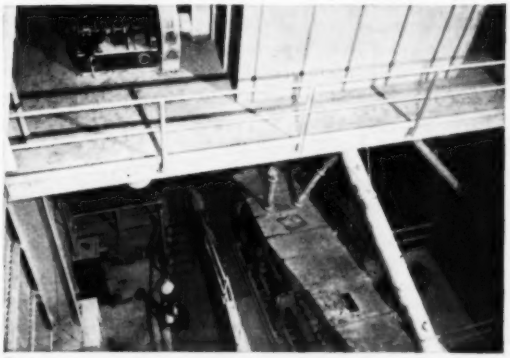
658-7

DUST LOSSES



3. **"Treater" room** (part of the plant's electrostatic precipitation equipment) contains insulator supports for a framework of 9000 pipes (anodes) and 5000 wires (cathodes) which hang in the pit under the floor where the gases are ionized. Dust collected on the pipes is periodically "rapped" and falls by gravity into bins below.

4. **"Rapped" dust from "treater" room** is discharged from individual bins into air slide conveyors and then to a screw conveyor which collects and transports the recovered dust back into the plant's processing. A G-E 10-hp gearmotor (background, right) drives the screw conveyor.



5. **A mechanical dust-recovery system** is used in the plant's primary-crusher building. Dust is sucked through ducts by a collector fan driven by a G-E 20-hp induction motor (top left), and collected in bags in a metal-enclosed room (top right). When bags are "rapped" by a vibrator driven by a G-E ½-hp gearmotor, dust falls into conveyor and re-enters the plant's processing system

SIX MORE SECO 83%ERS*

83% OF ALL SECO VIBRATING SCREENS BUILT IN 1951 WERE PURCHASED BY FIRMS OWNING ONE OR MORE SECO'S

Isn't This Proof of Seco On-the-Job Performance?

While the six Seco vibrating screens in the above photo are just on their way out of the busy Seco factory, there's a *real performance story* behind them.

Every one of these screens are on their way to operators who already know from experience that these smooth operating Seco vibrating screens will give them years of dependable service. They know that Seco fully controlled true circular action means better screening results. They know that Seco vibrating screens are virtually trouble-free through the years.

After all, it's performance that counts. That's why 83% of the hundreds of Seco vibrating screens built in 1951 went to join other Seco vibrating screens for operators who have had Seco's on their job for as many as fifteen years.

If you're planning to install vibrating screens in your plant for any screening job, from Ag-lime to rip-rap, you'll want to get the facts about Seco "Performance Proven" vibrating screens. Send for Catalog #203 today.

SECO
TRUE CIRCULAR ACTION
VIBRATING SCREENS

Why Take Less Than Seco "Performance Proven" Dependability.

Only Seco has the patented equalizer assembly that sets up a fully controlled true circular action under all load conditions.

Seco builds over 300 models.

In one, two, three and 3½ decks. For screening everything from Ag-lime to rip-rap.

SCREEN EQUIPMENT CO. INC.
1750 Walden Avenue
Buffalo 25, N. Y.
In Canada: United Steel Corp., Toronto, Ontario

Her fingertips imagine the taste

The lady doesn't trust her eyes alone.

The buyer of Multiwalls is in much the same position.

Aside from package design, it's hard to tell one manufacturer's bag from another's simply by looking at it or fingering it.

Put the bags out of sight and you may be able to see many differences.

Men who buy 85 per cent of all Multiwalls consider* these intangibles more important than any other factor when they choose their supplier.

Invariably, these are among the first questions they ask . . .

"Is this company big enough?"

"Do they have a fair allocation policy?"

"Are their prices competitive?"

"Do they respect delivery dates?"

In a nutshell—

"Are they good people to do business with?"

We can't tell you what the answers are when these Multiwall users consider Union. This we do know . . . and the inference is yours to make—

In these days of industrial pressure, when *dependability* is a fervent wish as well as a word, men to whom Multiwalls are important are placing an increasing share of their orders with Union.

More so every day . . .

IT'S UNION FOR MULTIWALLS

TRADE MARK UNION

*August, 1951 research study.

UNION BAG & PAPER CORPORATION • NEW YORK: WOOLWORTH BUILDING • CHICAGO: DAILY NEWS BUILDING

Engineered with performance in mind

HENDRIX DRAGLINE BUCKETS

3/8 to 40
CUBIC YARDS

A TYPE & SIZE
FOR EVERY
DIGGING PURPOSE

Dirt-moving men all over the country are singing the praises of Hendrix Dragline Buckets! . . . Because they know that they can get the most out of every job *with a Hendrix on that job!* Hendrix Buckets are large in capacity, yet light in weight but also rugged in construction, providing swift, smooth, precision operation that gets more work done in less time. . . . All this spells PERFORMANCE . . . what you can expect and what you will get with a Hendrix Dragline Bucket!

Hendrix Buckets may be special ordered without perforations

HENDRIX *Lightweight* **DRAGLINE BUCKETS**

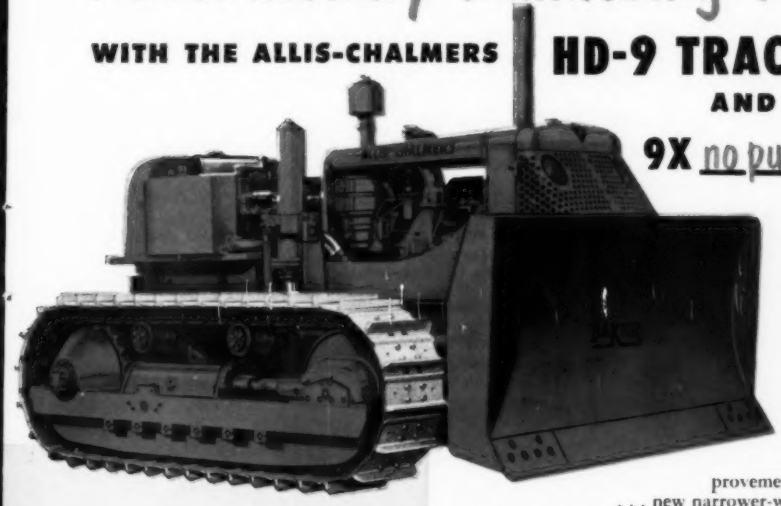
HENDRIX MANUFACTURING CO., INC.

MANSFIELD – LOUISIANA

Now...

Revolutionary Bulldozing Performance

WITH THE ALLIS-CHALMERS HD-9 TRACTOR AND NEW BAKER 9X no push-beam DOZER



8-FT. HIGHWAY-WIDTH BLADE
No Transport Permit Needed

72 Drawbar Hp.
Weight with Dozer, 21,500 lb.
6 speeds forward, 3 reverse

This major bulldozer design improvement brings you new dirt-moving ability . . . new narrower-width blade for transporting by highway . . . new low original cost . . . new ease of servicing and operator comfort.

Here's what makes this team a more productive combination:

A GREAT NEW TRACTOR. This new Allis-Chalmers HD-9 Tractor has power, weight and balance that puts it in a class by itself — never such traction . . . such pushing and pulling ability.

A REVOLUTIONARY TEAM. Here is a tractor-dozer combination designed together as a unit, which compares in performance with conventional "dozers" weighing from five to six thousand pounds more.

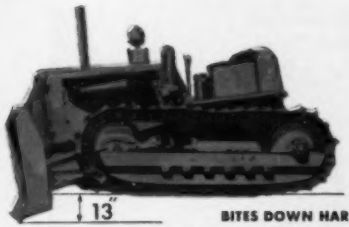
NO PUSH BEAMS. A completely new idea in bulldozer engineering, the 9X blade is mounted directly to the HD-9 main frame. Tractor main frame and dozer are raised and lowered as a single unit.

LIGHTER WEIGHT — BETTER STABILITY. Almost 1,150 lb. lighter than standard dozer. Costs less to buy. And with lighter blade mounted 15 inches closer, tractor center of gravity is not upset. No excess wear on front truck wheels and support rollers.

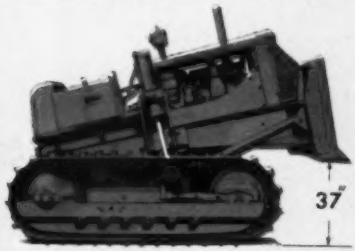
BIG DIRT MOVER. Because of extra clearance, greatly increased track oscillation and better balance, this team is a phenomenal performer in mud and tough going. And with blade fully six inches higher, capacity is kept on par with conventional blade.

SIMPLIFIED SERVICING. 1,000-hour lubrication of truck wheels, idlers and support rollers. Dozer mounting does not interfere with engine accessibility. No removal of major tractor assemblies. Hinged grill swings out for easy access to dozer hydraulic pump, or to clean radiator core.

EASY TO OPERATE. Just by pulling a single lever, operator can shift from any of the six forward speeds to any of the three high speed reverses. This, plus narrow, frame-mounted blade makes the HD-9 particularly fast and maneuverable. With no spring deflection, blade responds immediately and positively to control levers.



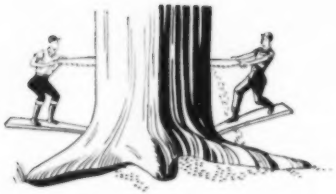
BITES DOWN HARD
Full 13-in. drop below ground, positive down pressure plus steep angle of penetration means fast digging.



HIGH LIFT — Full 37 in. above ground. Excellent for pushing over trees and stumps and clearing brush.

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U.S.A.



Lumber Company solves TOUGH problem in Conveyor Belt Application

Mounting labor costs and shortages of local workers caused a large Southern Lumber Company to install conveyor belts for unloading lumber.

The idea worked fine. Several carloads could be unloaded simultaneously on the belts with minimum effort, handling costs were reduced and a confused traffic situation was eased.

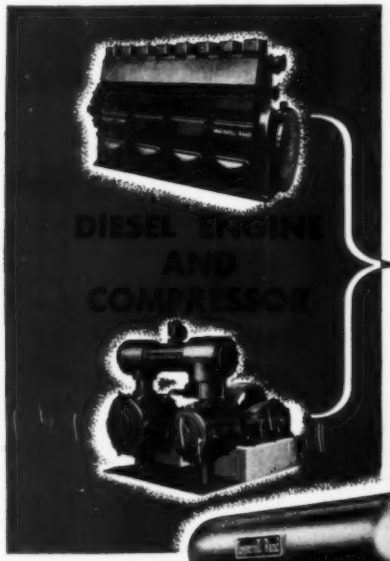
But, ordinary conveyor belts couldn't stand the pace! Rough oak planks gouged off sections of belt covers and weather made deep inroads through the cuts, causing carcass deterioration and premature belt failures.

A local Republic Distributor, called in for advice, quickly solved the problem by recommending use of Republic Record Maker—a conveyor belt with tough rubber exterior and a rugged, mildew-resistant carcass.

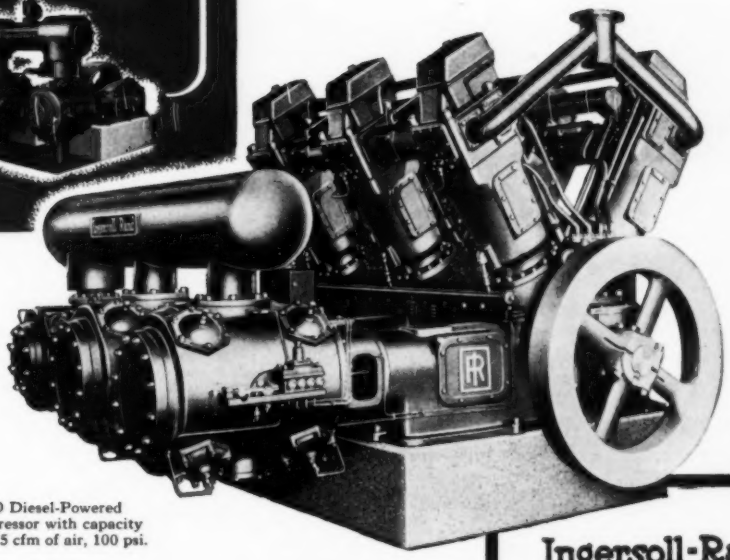
Today, 4 years later, the job's still going smoothly! Raw lumber rolls steadily into the mill on Record Maker Belting. There have been no work stoppages due to belt failures, and company officials claim the operation is now 4 times more efficient than it was when ordinary belts were used.

You'll achieve similar success with Industrial Rubber Products only if the products are properly applied to the job. Take advantage of Republic Rubber's free service offering to have a complete analysis made of your requirements. Write us today. Whether it's Conveyor Belting, Transmission Belting, Hose or Packing—there's no substitute for the best!

INDUSTRIAL RUBBER PRODUCTS BY
REPUBLIC RUBBER DIVISION
Lee Rubber & Tire Corporation
YOUNGSTOWN, OHIO



...IN ONE UNIT



6XVO Diesel-Powered Compressor with capacity of 1075 cfm of air, 100 psi.

The XVO diesel-powered compressor is a completely self-contained compressor plant. It provides a dependable compressor that's entirely independent of local power sources. And it assures maximum economy of installation, operation and maintenance.

The XVO is more than just a compressor driven by a diesel engine. It's compressor and engine *all in one*. The 4-cycle diesel power cylinders and double-acting compressor cylinders are mounted in a single, compact frame. The pistons in both the power and compressor cylinders are connected to the same crankshaft. This space-saving unit design results in exceptionally high efficiency—permitting the XVO to compress 5600 cubic feet of air to 100 psi with *one gallon* of fuel.

Ingersoll-Rand XVO compressors are available with 2, 4, 6 and 8 power cylinders, for capacities of 335, 700, 1075 and 1450 cfm respectively (100 psi air). Compressor cylinders for any pressure or vacuum can be furnished.

For further information, see your nearest I-R representative. Or write for your free copy of Bulletin No. 3172-A.

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

COMPRESSORS • AIR TOOLS • ROCK DRILLS • TURBO-BLOWERS
CONDENSERS • CENTRIFUGAL PUMPS • DIESEL AND GAS ENGINES

Ingersoll-Rand

XVO

Diesel-Powered Compressors

- *Save Space*
- *Save Weight*
- *Save Fuel*
- *Make Compressor independent of local power source*

727-6

SHORT CUT TO MORE

OF CLEAN CUBICAL

SINGLE 3240 IMPACT MASTER IN CLOSED CIRCUIT SETUP GIVES DILLON STONE COMPANY PROFIT-MAKING CAPACITY

Under normal operations, the Dillon Stone Company, Columbus Junction, Iowa, feed their closed circuit IMPACT MASTER setup with a ¾ yard shovel and 3 quarry trucks to turn out an average of 110 — 120 tph to meet market demands. Their product is approximately 28 percent minus 1¼" plus ¾", 38 percent minus ¾" plus #4 mesh, and 34 percent agricultural limestone.

ADDS SHOVEL . . . DOUBLES OUTPUT

During their peak operating period last summer, they added another ¾ yard shovel, increased their quarry trucks to 6, and stepped up production to over 200 tph of minus 1¼" . . . at times reaching a peak of 240 tph. No other additions were made on the plant. The single 3240 IMPACT MASTER does the complete crushing job with 135 hp.

WRITE FOR LITERATURE

More production with minimum plant investment is just one of the profit-making features of the PMCO IMPACT MASTER. Get proof of performance for yourself. Find out how "Controlled Impact Action" works to give you a better quality uniform gradation cubical aggregate, how it gives you greater control over finished product size with simple mechanical adjustments changing the percentage of sizes when desired. PMCO IMPACT MASTERS are available with capacities to 500 tph. Write today for details.

PETTIBONE MULLIKEN CORPORATION

4700 West Division St., Chicago 51, Illinois Phone Spaulding 2-9300

HAMMERMILL HAISS UNIVERSAL

PRODUCTION

AGGREGATE

CONTROLLED IMPACT ACTION

Dillon Stone Company's closed circuit setup with 3240 IMPACT MASTER, 36″ x 12′ apron feeder, 5′ x 14′ 3-deck screen, 30″ x 16′ breaker conveyor, 24″ x 100′ main plant conveyor, 18″ x 62′ return conveyor, 23 yard bins, and portable stockpiling conveyor. To the right, a close-up view of the single 3240 IMPACT MASTER which does the complete crushing job.

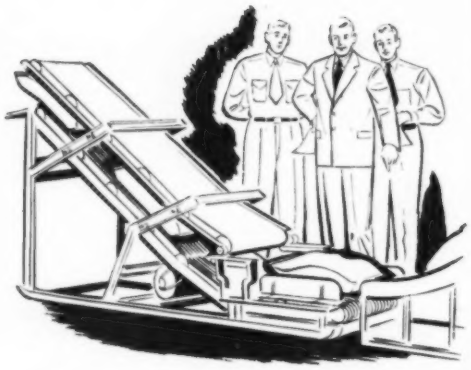
GET PROFIT-WISE GO PMCO

NO. 4 OF A SERIES

ON HOW TO

Stretch a MULTIWALL Paper Bag

Kraft paper supplies are short. So it is important for you to get the best use from your multiwalls. Here are a couple of good ways to stretch them . . .



USE THE EXPERIENCE OF BEMIS SALESMEN AND SERVICE MEN

From installation of equipment to car-loading, Bemis men can often give money-saving help. Here is an actual case:

A mill complained that multiwalls were breaking going through the bag flattener. A Bemis Salesman found that—

1. The chute from the valve packer was too steep. The bags hit the flattener rolls too fast.
2. An obstruction in the chute made small cuts in the bag.
3. The guide rails were too far apart so some bags entered the rolls on the diagonal.

The causes of trouble were eliminated . . . everybody benefited.

USE A BEMIS SEWING MACHINE CLINIC

These clinics are informal instruction periods conducted by specially trained Bemis experts for plant personnel who supervise and use bag closing sewing machines. There are demonstrations and discussions on sewing machine operation and maintenance. Motion pictures show efficient installations, the dismantling and reassembling of sewing heads, etc.

Bemis specialists also assist in planning production line changes . . . and they will recommend new types of equipment, describe latest methods, or help you with special packaging problems.

Want the Whole Story?

Ask your Bemis Man for a copy of the illustrated Bemis Multiwall Packing Guide. It deals with Storage, Filling and Closing, Handling, Palletizing and other important subjects that will help you make your multiwall bags serve you better.

• • •

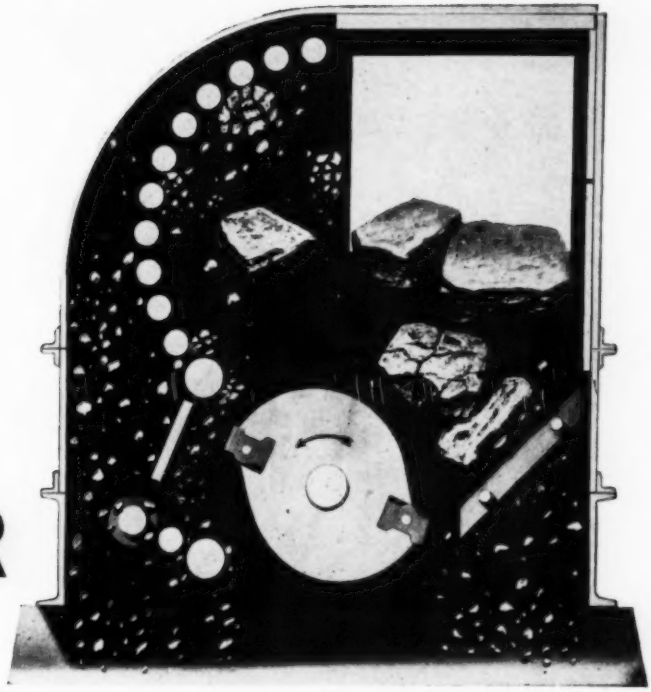
Maybe Cotton Bags are Your Answer . . . if you can't get all of the multiwalls you need. Cotton bags are available . . . and Bemis is the leading cotton bag source.

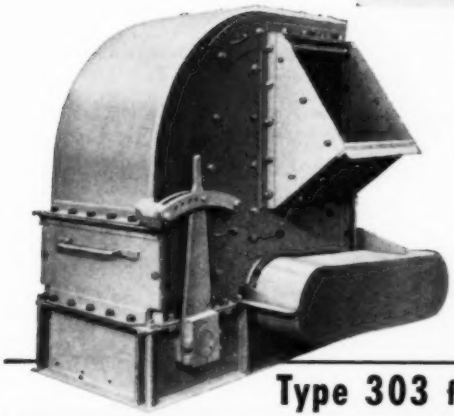
Bemis

BEMIS BRO BAG COMPANY

St. Louis 2, Missouri

The ROCK BUSTER





Cross-section view tells the story. This NEW Jeffrey Impact Crusher reduces material while in suspension by means of high-speed, 2-ton Rotor, perfectly balanced. Full width stationary and reversible Hammers of heavy cast Manganese steel. Capacity from 60 to 250 tons per hour.

Material fed into side (see photo left) onto a sloping grizzly of desired spacing, which by-passes fines and directs over-size into path of rotor. Cubicle product ranging from 1" to 4" in one pass. Finer sizing possible. Breaker bars adjustable. 30" x 30" opening only restriction to size of feed.

Send for Bulletin No. 827 which goes into detail . . . gives typical screen analysis on 12" limestone. Write today.

Type 303 for reducing hard, friable materials

THE JEFFREY MANUFACTURING COMPANY

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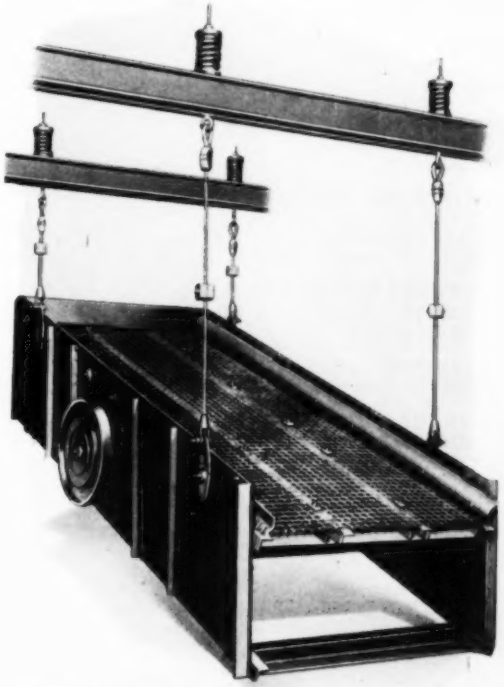

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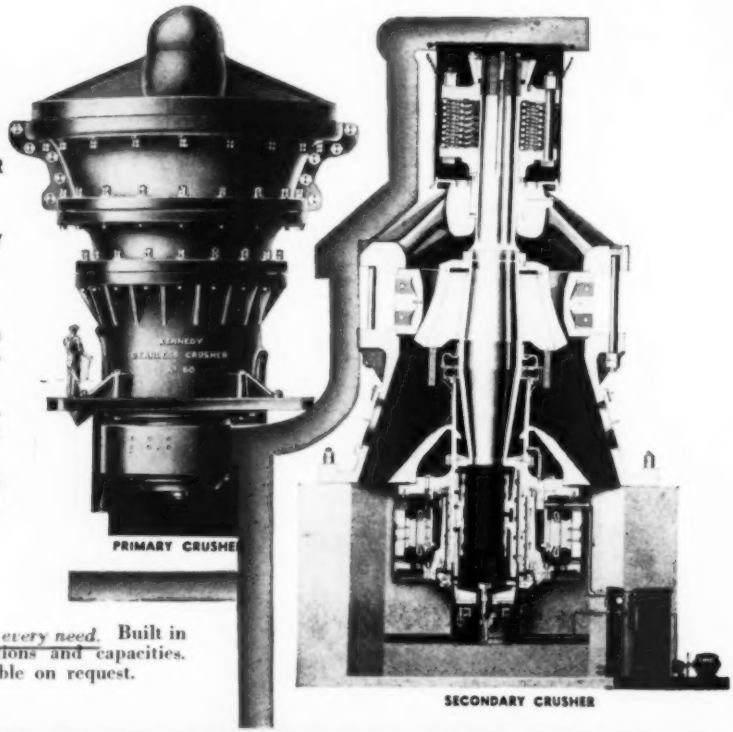

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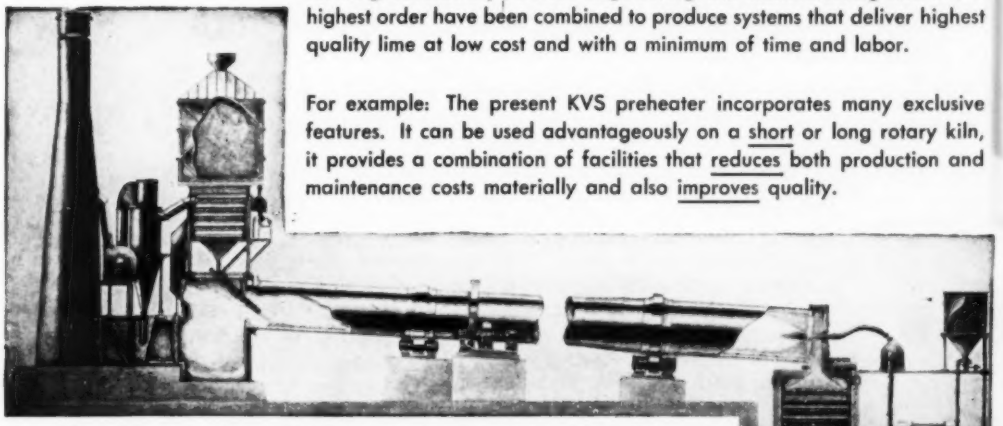

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The entire steel industry will appreciate your cooperation.

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For 20 straight years Internationals have been first in heavy-duty truck sales.

It will soon be 21. Another year will be added to International Trucks' heavy-duty leadership because truck operators who know hauling costs will *continue* to prefer the trucks that give them lower operating and maintenance costs, longer truck life.

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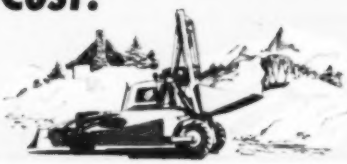

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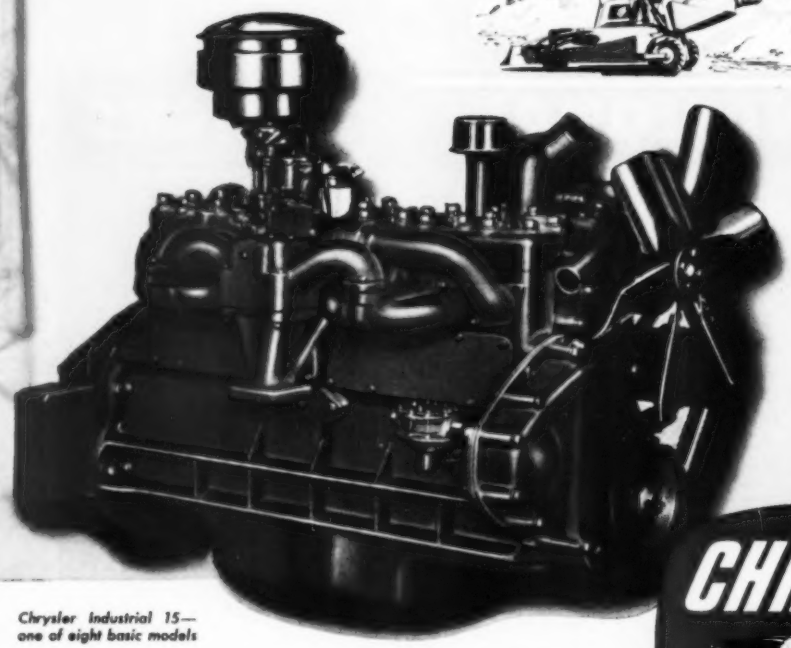

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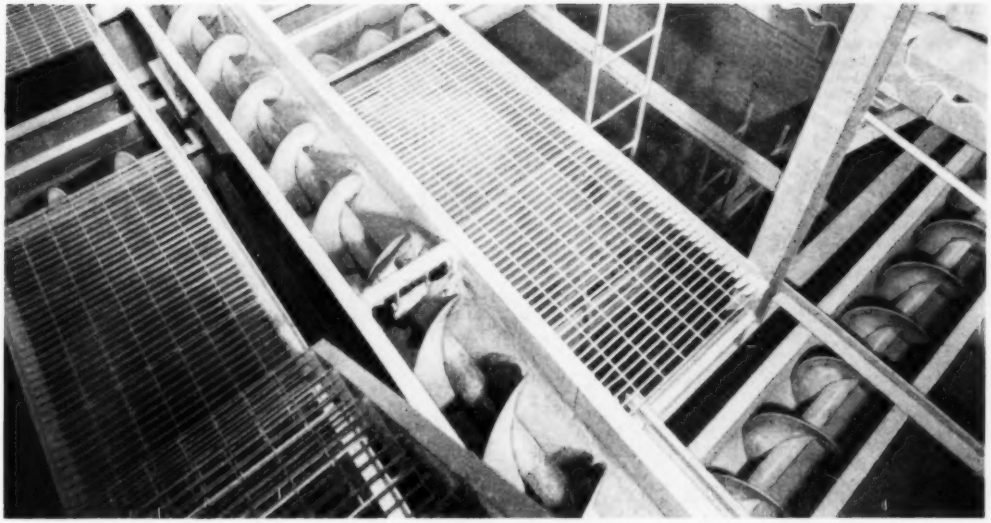
A letter of inquiry will bring an engineer well qualified to discuss your particular application. Address: *Industrial Engine Division, Chrysler Corporation, Detroit 31, Michigan.*



This Link-Belt 12-inch screw conveyor delivers screened mixed material to four 12-inch diameter reversible screw conveyors. These distribute to 16 raw-material storage bins through a series of discharge gates and chutes.

There's no substitute for "total engineering" in screw conveyors

LINK-BELT integrates all components to give you the right screw conveyor for your job

HERE'S how "total engineering" works for you when you buy Link-Belt Screw Conveyors.

First, conveying specialists analyze your problem. Then, Link-Belt's vast experience in design and manufacture is at your command to recommend the screw conveyor—or system of conveyors—for your particular requirements. The right components are then selected from Link-Belt's complete range of types and sizes.

Link-Belt "total engineering" on your screw conveyors is your assurance of efficient design . . . balanced performance.

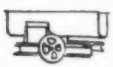
To benefit from Link-Belt's materials handling experience and engineering service, contact the Link-Belt office near you.

LINK-BELT designs and builds all components

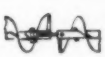
SCREWS—Link-Belt makes a complete range of conveyor screws—Helicoid, Sectional Flight, Cut Flight, Ribbon Flight, Paddle type and other special types for such diverse applications as feeding, conveying, mixing, agitating, stirring, blending, etc.

HANGERS—Available in a variety of styles and mountings, with various bearing materials and steel or cast hanger frames.

TROUGHS—Link-Belt builds flanged, angle flanged, flared, rectangular, dust-seal, jacketed and drop-bottom types in steel or alloy metals. Variety of connections, supports, covers and clamps offers added design flexibility.

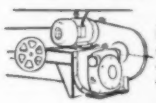


SPOUTS & GATES—Plain discharge spouts can be fixed or detachable. Discharge gates, flat or curved slide, can be hand or rack-and-pinion operated.



SHAFTS & COUPLINGS — Conveyor couplings and end shafts are designed for adequate torsional strength and have jig-drilled coupling bolt holes for accurate alignment.

TROUGH ENDS—Steel or alloy metal plate or cast trough ends to match all trough shapes, provide required shaft bearing support and alignment. Seal glands to protect bearings, if required.



DRIVES — Link-Belt designs and builds many forms of drives to suit specific conditions — Enclosed gear, Electrofluid, P.I.V. variable speed, and chain drives of various types.

LINK-BELT

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PIT AND QUARRY

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S-407

editorial

Highway Construction Must Continue

FOR many years we and many others have been been preaching the necessity for stepping up our road-building program to meet the demands of constantly increasing traffic; and civic, business, and industrial groups have been campaigning to get more money for road construction. Competent authorities have repeatedly pointed out that our highways are deteriorating more rapidly than new ones are being built. Finally some results of these efforts were becoming apparent, and more money was becoming available for both free and toll roads, when the entire road program received a sharp setback through the restriction of steel for all types of road construction. Such a move at this time is a serious threat not only to our national economy but also to our national security.

In a recent letter to the National Sand and Gravel Association, and the National Ready Mixed Concrete Association, which has been circulated among their members, H. V. Owens, president of Eastern Rock Products, Inc., Utica, N.Y., and a past-president of N.S.G.A., took issue with the manner in which steel is being allocated by NPA. "There are," he said, "40 purposes for which steel is allocated in varying amounts proportioned to the needs of each. The top five defense need priorities are fully justified. The allotments to the other 35 average 55 percent of their needs. Highways are sixth from the bottom, competing for place with motion pictures, and are alloted 29 percent of their needs."

AT THE recent Governors' Conference in Washington, said Mr. Owens, 20 governors represented their states in person and the others sent high state officials to represent them. The conference agreed completely as to the importance of continued highway improvement and elected one of their number to represent all the states in an appearance before NPA for the purpose of demanding more steel for their highways. The appeal was turned down flatly by Manly Fleischmann, administrator of NPA, Mr. Fleischmann, in supporting his refusal, stated that in the eyes of NPA highway improvement is of no importance in the defense effort.

Mr. Owens pointed out that this arbitrary attitude not only threatens national security and the high level of business on which our defense effort depends, but it also threatens aggregates and ready-mixed concrete producers directly by cutting down a market which uses a large proportion, perhaps approaching 50 percent, of the products of these industries. He believes that the only possible approach toward correcting this condition is to start at the grass roots and from there to bring pressure on our senators and congressmen to intervene. Members of these industries, he said, can help to generate such pressure. "By so doing they will not only defend their markets, but will also be serving the interests of millions of taxpayers who need and want better highways and who, when the circumstances are made clear to them, will make their wants known."

THE terrific cost of traffic congestion in cities was pointed out recently by Ben F. Ostergren, manager of the County and Local Roads Divison of the American Road Builders' Association. In Chicago, he said, the cost is between one and two million dollars daily and includes delays in time, accidents, lowered morale of workers, and disruption of mercantile and industrial schedules. In emphasizing the dangers of the federally-imposed shortages of steel for highway purposes, Mr. Ostergren pointed out that Chicago, in an effort to escape from one of its worst traffic bottlenecks, had requested 3,000 tons of steel for an extension of Lake Shore Drive and was given 250 tons. In the overall picture, he said, highways are being allotted 27.9 percent of the carefully-screened demand for structural steel in the first quarter of 1952. According to the Bureau of Public Roads, 656 important road projects are being delayed for lack of steel. Mr. Ostergren conceded that steel is sorely needed in the defense effort but went on to show that highways are an essential part of that effort.

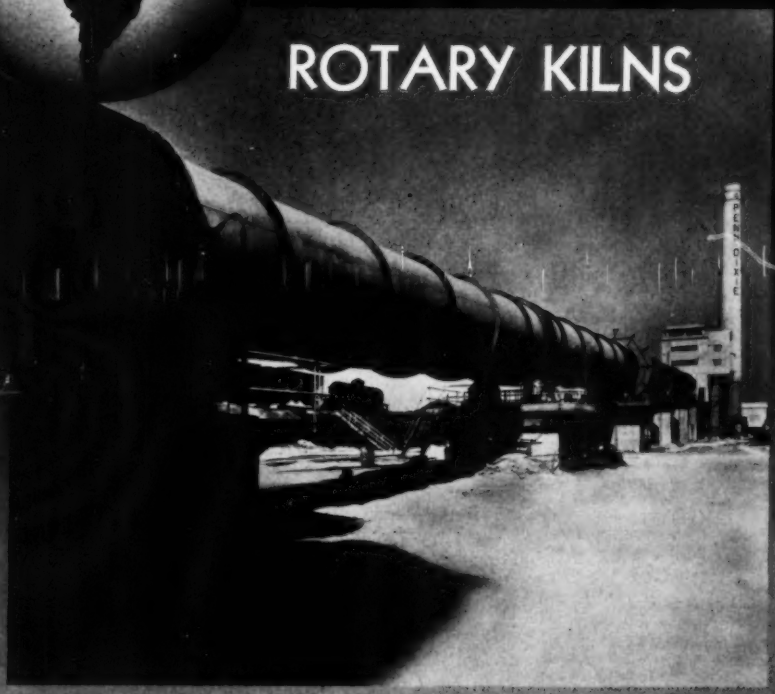
IN A recent article, Paul B. Reinhold, president of the American Road Builders' Assn., and a tireless worker for an adequate highway system, pointed out that most of our present three million miles of roads were built in the 29's and 30's for 35-m.p.h. traffic on 16-ft. pavement and bridges. Every road built in that era, he said, is ready for rebuilding, or the same cost has already been poured into maintenance. Another factor, according to Mr. Reinhold, is that the appropriations for road building have not kept pace with the decreasing buying power of the dollar or with the national income. In 1941 we spent $2,100,000,000 on highways, compared to $3,400,000,000 in 1949; but in terms of 1941 dollars, the latter figure represented only $1,800,000,000. In the post-depression 30's we spent 2 to 3 percent of our national income on roads, and now, with the lag of the war years to make up and a tremendous increase in the number of motor vehicles and the mileage traveled, we are spending only 1½ percent. He estimated that, at today's dollar value, it would require an annual expenditure of $5,700,000,000 for 15 consecutive years to build an adequate highway network.

ONE might say that both of the above are men who have selfish motives in endorsing the expansion of our highway program and who would profit directly from highway expenditures. This is, of course, true to some extent; but such men are also most familiar with the problem and are fighting it, while most of the rest of us, who have an equally vital interest, are doing nothing. Every producer of aggregates, cement, ready-mixed concrete, etc., should help his country and his own business by awakening people in his area to what is going on and by urging them to contact their congressmen on this vital matter.

Walter E. Trauffer

SMIDTH

ROTARY KILNS



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PIT AND QUARRY

Ideal-Pacific Portland Deal Includes Expansion Plans For Two Operations

According to word from officials, the properties of the Pacific Portland Cement Company are to be improved and expanded to the extent of approximately $6,500,000, now that exchange of the firm's stock for Ideal Cement Company shares has been approved by 80 percent of Pacific stockholders.

Plans include expansion of facilities at Redwood City, Calif., at an estimated cost of $3,500,000 and the rebuilding of Pacific's plant at Gold Hill, Ore., a $3,000,000 project.

Ideal is now considered the fourth-largest cement concern in the United States, operating 13 producing plants and one distributing plant. Facilities in California, Oregon, and Nevada were added to the roster with the Pacific-Ideal merger. Since 1945 Ideal has spent about $32,000,000 on expansion, taking in new plants at Houston, Tex., Mobile, Ala., and Baton Rouge and New Orleans, La. Total annual production before the deal with Pacific was given as 19,000,000 barrels.

Under the terms of the agreement covering the transaction, Pacific will be operated by Ideal as a subsidiary, but will retain its corporate identity for the present. Pacific Portland Cement stockholders will receive one share of Ideal stock for each two of Pacific.

An efficient safety program paid off at the Devils' Slide, Utah, operation of the Ideal Cement Company. On November 7, 1951, a handsome monument was presented to the plant by Ivan Legore, safety director of the Portland Cement Association. The personnel of the Devils' Slide operation won the monument for maintaining a perfect safety record throughout 1950.

The New York Coal Sales Company, Columbus, O., is celebrating the 50th anniversary of its founding this year. A subsidiary of the firm, Hocking Valley Brick, is also observing an anniversary year, its 40th; and a second affiliate, the Superior Cement Division, marked 25 years in operation in 1951.

Coming Events

February 18-20, 1952 — Chicago. 35th annual convention and exhibit, National Crushed Stone Association. Conrad Hilton (formerly Stevens) Hotel.

February 18-20, 1952—New York. 32nd annual convention, National Concrete Masonry Association. Hotel New Yorker.

February 18-21, 1952—New York. 79th annual meeting, American Institute of Mining and Metallurgical Engineers. Hotel Statler.

February 26-28, 1952—Cincinnati. 48th annual convention, American Concrete Institute. Netherland Plaza Hotel.

February 27 and 28, 1952—Chicago. Third annual convention and meeting, American Concrete Pressure Pipe Association. Drake Hotel.

February 28- March 1, 1952 — Chicago. 44th annual convention and meeting, American Concrete Pipe Association. Drake Hotel.

March 3-5, 1952—Denver. Second annual convention and meeting, American Concrete Agricultural Pipe Association. The Brown Palace Hotel.

March 5 and 6, 1952—Des Moines. Seventh annual convention, Iowa Agricultural Limestone Association, Inc. Savery Hotel.

April 7-9, 1952—Cleveland. Seventh annual meeting and lubrication show, American Society of Lubrication Engineers. Hotel Statler.

May 8-10, 1952.—Hot Springs. 50th annual convention, National Lime Association. The Homestead.

May 14-16, 1952—Hot Springs. 17th Annual meeting, National Industrial Sand Association. The Homestead.

Secy. Chapman Releases Preliminary Report On Coal Mine Disaster

Secretary of the Interior Oscar L. Chapman has released a preliminary report on the fatal mine explosion which killed 119 men and injured four others at the Orient No. 2 Mine of the Chicago, Wilmington and Franklin Coal Company at West Frankfort, Ill., on the night of December 2, 1951.

Secretary Chapman flew to West Frankfort to make a personal inspection of the mine. Accompanied by Director Forbes and other Bureau of Mines officials, he entered the mine and observed the recovery of the bodies and inspected the shattered interior, 510 feet below the surface.

"The source of the explosion," Secretary Chapman said, "has not been determined as yet. The final report will not be completed until analytical tests of air and dust taken from the mine have been made by Bureau experts. This work is now under way. . . ."

According to the preliminary report, ignition of methane gas, possibly of electrical origin, was the "most likely" cause of the disaster. The following statement was also made: "It was obvious to the investigators that large accumulations of coal dust were present in the affected areas of the mine and that sufficient rock dust has not been applied to prevent the propagation of the explosion."

Asphalt Institute Names J. R. Benson to Special Post

Bernard S. Gray, president of The Asphalt Institute, has announced the appointment of Jewell R. Benson, effective January 1, as special projects engineer, to promote the use of asphalt for the U. S. reclamation program and other special purposes.

With offices at Denver, Colo., Mr. Benson will be engaged on a national scale in directing and coordinating the institute's studies with field engineering activities relating to canal, reservoir, and pond linings, dam facings, erosion control, and all other special asphalt uses. For the last five years he has been with the U. S. Bureau of Reclamation at Denver as bituminous engineer and head of the bituminous laboratory.

Final Annual Figures Show Cement Production Set New Records in 1950

Production—Heavy demand for cement during 1950 sent output soaring to a new record. The production of 226,025,849 barrels of portland cement was reported to the U. S. Bureau of Mines—an increase of 8 percent over the 1949 figure. The production of other hydraulic cements, natural, masonry (natural), and puzzolan (slag-lime), by nine plants amounted to 4,246,299 barrels, an increase of 33 percent over the previous year.

Shipments—The demand for portland cement in 1950, as indicated by shipments from mills, rose to 227,756,636 barrels, valued at $535,321,123, as compared to 206,080,325 barrels, valued at $473,177,032, in 1949. The average value of $2.35 per barrel in 1950, as compared with $2.30 in 1949, reflects a continued rise in operating costs. Shipments of "other" hydraulic cements amounted to 4,218,580 barrels—an increase over 1949 of 30 percent.

Stocks—Mill stocks of portland cement on hand December 31, 1950, totaled 13,027,712 barrels—12 percent less than at the end of 1949. Stocks at the end of 1950 were lower in 10 districts and higher in 9 (including Puerto Rico). Stocks of natural, masonry (natural), and puzzolan (slag-lime) cements on hand at the end of 1950 amounted to 189,324 barrels—an increase of 17 percent over the 1949 year-end figure.

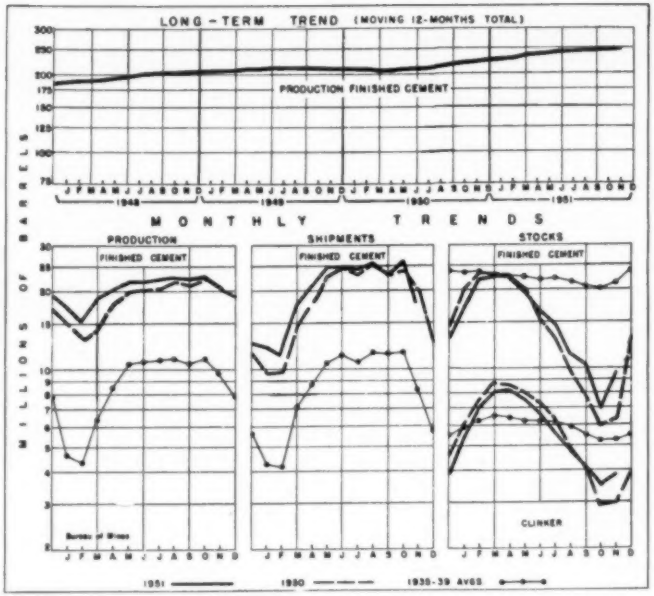
Capacity—The estimated annual capacity of the portland cement industry in 1950 was 268,273,305 barrels, as compared with 258,948,399 barrels in 1949. The percent of capacity utilized in 1950 was 84.3, as compared with 81.0 percent in 1949. Percents of capacity utilized were higher in 1950 in 13 districts, lower in 5 districts, and unchanged in 1 district.

Fuel—Except for a decrease of a fraction of 1 percent in the consumption of coal, all fuel used by the industry showed increased consumption in 1950 over the 1949 figures. The percentage gains were: fuel oil, 15 percent; natural gas, 15 percent; byproduct gas, 6 percent. Coal was the sole fuel used in the production of 49 percent of the total cement output.

Types of Cement—Except for the sulphate-resisting (type V), output of each type was higher in 1950 than in 1949. Marked gains were made by the general-use cements (types I and II) and by the low-heat (type IV). Output of white cement gained 10 percent over 1949.

Types of Carrier—Percentages of portland cement shipped by railroad continued to decline, although they still represent 75 percent of the total. Truck shipments constituted 24 percent of the total, while the remaining 1 percent was shipped by boat. For the first time, more than one-half of the total output of cement was shipped in bulk.

Surplus or Deficiency in Local Supply—The total surplus of 30,208,317 barrels of cement in producing states was distributed as follows: 27,400,258 barrels to non-cement-producing states, Alaska, and Hawaii; 2,773,010 barrels to destinations outside continental United States (excluding local consumption of Puerto Rican production); and 35,049 barrels to unspecified destinations.



SUMMARY—The output of 20,736,000 barrels of finished portland cement in November, 1951, as reported to the U. S. Bureau of Mines, was 3 percent greater than that reported for November, 1950. Mill shipments totaled 18,001,000 barrels—a decrease of 9 percent as compared to the November, 1950, figure, while stocks of 9,680,000 barrels were 52 percent higher than those of one year ago. Clinker production during November was 4 percent higher than in November, 1950, and amounted to 21,164,000 barrels.

PRODUCTION—153 plants located in 36 states and Puerto Rico produced 20,736,000 barrels of finished portland cement during the month, as compared to 150 plants which manufactured 20,226,000 barrels in November, 1950. Clinker production of 21,164,000 barrels was 4 percent greater than that of the preceding November.

SHIPMENTS—Mill shipments of finished portland cement decreased 9 percent from the total shipped in November, 1950. Shipments were greater in five districts and lower in 14 districts than shipments recorded for November, 1950. The percentage changes range from a 36 percent increase in the Puerto Rican district to a decrease of 35 percent in the Iowa district. The principal increase in continental United States was one of 25 percent in the Virginia-Georgia-Florida-Louisiana-South Carolina district. Marked decreases occurred in the New York-Maine and the Illinois districts.

STOCKS—Mill stocks of 9,680,000 barrels of finished portland cement were reported at the end of November, 1951—52 percent greater than at the same date in 1950, while stocks of clinker amounted to 3,891,000 barrels—31 percent greater than at the same time last year.

Americans Urged to Help In Fight Against Arthritis

Officers and directors of the Arthritis and Rheumatism Foundation, in an appeal sent out by General George C. Kenney, president, call attention to the startling fact that there are today 7,500,000 Americans who suffer from crippling arthritis. In terms of national defense alone, this means a serious threat to the nation's manpower pool.

"The Arthritis and Rheumatism Foundation is now appealing for public support to carry on its fight to conquer this greatest crippler of mankind," General Kenney states, "and to bring immediate relief to its millions of victims—*one in every 20* of our fellow citizens."

In order to provide further research on the cause and cure of arthritis, establish additional arthritis centers, aid indigent patients, expand rehabilitation facilities, endow more hospitals beds, and promote medical education aimed at wider experience in dealing with this disease, the foundation appeals to all Americans to contribute to the campaign now being advanced throughout the nation.

Production of cement in 1950 in Chile amounted to 460,710 metric tons, as compared with 445,165 tons in 1949, according to the Central Statistical Bureau. These figures include the production of El Melon and El Sildado plants; but the output of several minor producers and of the Cia. de Cemento Cerro Blanco at Palpaico is omitted. The latter concern has a reported capacity of 200,000 tons per year.

Oliver Bowles Returns To U. S. Bureau of Mines As Minerals Consultant

Oliver Bowles, who retired from the United States Bureau of Mines in 1947 after 33 years of service, has been reappointed as a consultant to assist in various problems of mineral supply which have become urgent during the present emergency.

Mr. Bowles was chief of the Nonmetal Economics Division of the Bureau of Mines at the time of his retirement in January, 1947. In this post he was responsible for furnishing the war agencies with information pertaining to mica, graphite, quartz, cement, chemical raw materials, asbestos, potash, phosphate rock, magnesia, and other vital minerals.

He is an authority on quarrying and mining operations in this country and abroad, and has written many papers and reports on nonmetallic minerals. Mr. Bowles is a director of the American Institute of Mining and Metallurgical Engineers and a charter fellow of the mineralogical Society of America.

Natl. Gypsum Chairman Sees Good Construction Year

"The overall construction picture for 1952 is not black," Melvin H. Baker, chairman of the board of National Gypsum Company, declared recently. "I expect there will be a decline from last year's level, but the picture is far from gloomy in spite of what some pessimists might say. A Korean truce would have little effect upon business since the defense effort would continue at approximately the present pace."

Two reasons were given for this optimistic view. The company's industrial business, particularly lime, is likely to continue at the present high rate; and with the recent reorganization of the sales department, greater emphasis can be placed upon industrial and export business. Moreover, remodeling and repairs should provide an expanding demand. A decline in new home construction would free construction workers for repairs and modernization.

Ried Engineering Service Available to Nonmetals Firms

R. C. Ried, formerly with Knowles Associates of New York City and Separation Process, Catasauqua, Pa., announces the establishment of R. C. Ried, Engineers, with offices at 11 W. 42nd Street, New York, N. Y.

The new firm offers industrial, metallurgical, mechanical, technical, operational, and managerial assistance to the nonmetallic industries.

Marquette's Brandon Plant Opens—A Million Bbl. Annually

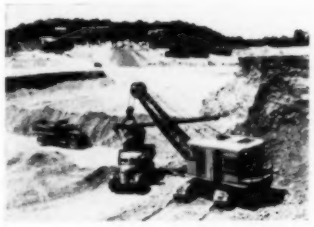
Production has begun at the Marquette Cement Manufacturing Company's new plant at Brandon, Miss., where cement is being turned out for the Southern market for the first time in that state.

Oliver Bowles

The big 450-ft. kiln in operation at the plant is now producing cement clinker at its regular rate of 1,000,000 bbl. annually. Shipments of all types of portland and masonry cement will soon be made to consumers in Mississippi, Louisiana, and south-eastern Arkansas.

According to word from Henry K. Hartman, sales manager, the Dragon Cement Company, Inc., successor to the Lawrence Portland Cement Company, recently closed its Philadelphia office and moved to new quarters in Camden, N. J., at 130 North Broadway.

Cover Picture....



• Our cover cut this month shows a 2-cu. yd. Lorain 820 shovel loading out the top 30 ft. of tough cemented gravel, running 30 to 40 per cent plus 2-in., at the Camp Dennison, O., plant of the Ohio Gravel Company, Cincinnati. This unit and another Lorain, which loads out the smaller sizes in the bottom 20 ft., feed material at the rate of 500 t.p.h. into the plant. This operation, the newest of the firm's six plants, is said to be the largest in southern Ohio. The normal flow chart is reversed, in that stone is taken off and crushed first, with the sand and gravel going over for subsequent treatment.

Kennedy-Van Saun Cited Among Equipment Firms Getting Big Order Volume

In an article appearing in the *New York Times*, it was stated that the volume of orders placed early in the year for materials-handling devices, process equipment, and related machinery was from 20 to 35 percent higher in volume than that recorded a year ago. Indicative of the trend in equipment purchasing is the example of the Kennedy-Van Saun Manufacturing and Engineering Corporation of New York.

Byron Pyle, vice-president of the firm, was quoted as stating that his concern, makers of cement mill equipment and industrial boilers, is finishing construction of "dual purpose" facilities in which civilian and national defense production will proceed side by side. Production equipment expansion plans involve coordinating the work in progress on a 16-acre tract, serviced by large cranes.

It was stated that it was necessary to build new structures and buy machinery to equip a 4-acre defense production area, and at the same time to utilize much of the firm's civilian product plant equipment for projects which directly help some aspects of the national defense effort.

Among such projects was an order received recently for lime plant equipment costing $300,000 for a new mill at Nelson, Ariz. Other machinery which will eventually aid the defense output include a bauxite grinding mill for the Reynolds Metals Company at Corpus Christi, Tex. Orders have also been received for three new cement plants in Mexico, one in Cuba, and a crushing plant destined for a firm in Central America.

High Safety Score Achieved By Lawrence Employees

October 28 marked the completion of 1,000 consecutive days of no lost-time accidents at the Northampton mill of the Lawrence Portland Cement Company.

Lawrence's safety committee members at Northampton have been successful in making their fellow workers safety conscious and are now receiving well-deserved congratulations.

Members of the Lawrence safety committee are H. P. Joecker, safety director, Granville Koehler, chairman, and Michael Kolumber, Charles Farrell, Joseph Frisch, Arthur Schaffer, Burt Gillespie, Stanley Rebenold, Alvin Gardner, Raymond Baudot, Frank Laufits, Sherwood Derbert, Anton Haller, Carl Geiger, and Alvin Marsh.

The Zonolite Company of Chicago has opened a new vermiculite processing plant at Glendale, Ariz., to be operated by the California Zonolite Cmpany, Los Angeles, Calif., licensed plant of the Chicago firm. The plant will process vermiculite ore from the Zonolite mine at Libby, Mont., for use throughout Arizona.

International Minerals Absorbs E. Clay Products, Forms New Division

International Minerals & Chemical Corporation has acquired all of the outstanding capital stock of Eastern Clay Products, Inc., and simultaneously created a new Industrial Minerals Division, into which that company will be absorbed, according to an announcement by Louis Ware, International's president. International now has five product divisions—phosphate, plant food, potash, amino products, and industrial minerals. Norman J. Dunbeck, formerly vice-president and operating head of Eastern Clay Products is in charge of the new division.

The acquisition of Eastern Clay Products, Inc., was accomplished by exchanging 83,513 shares of International's common stock for 47,697 shares of Eastern's common stock, all of that firm's outstanding capital stock.

Eastern Clay Products produces swelling bentonites, which are used as drilling muds in oil fields, and other grades of bentonites and clays which are used in foundries and other industrial applications. The bentonites are mined and processed from deposits owned or leased in South Dakota, Wyoming, Montana, and Mississippi. Refractory specialties and bonding clays are produced in Ohio. Essentially the company's operations consist of open pit mining of ore, followed by storing, crushing, drying, pulverizing, and bagging. Eastern Clay Products is the largest producer of foundry bond clays. Clay and bentonite plants are operated at Belle Fourche, S. D., Smithville, Miss., and Bondclay and Lawco. A refractories plant is operated at Jackson, O., and equipment and refractory specialties are produced at other points.

Commenting on the acquisition, Mr. Ware pointed out that Eastern's operations will fit into International's production methods.

"All of Eastern Clay Products' operations find direct parallels in International's present mining techniques. Eastern Products will not lose their identity in the process of being absorbed into International Minerals & Chemical Corporation."

Mr. Dunbeck has been elected a vice-president of International Minerals & Chemical Corporation, to head the new Industrial Minerals Division. In that capacity he will continue to direct Eastern's operations. He is a graduate chemical engineer and joined Eastern upon its incorporation in 1926 to establish a control laboratory. In 1936 he was elected vice-president and general manager.

Employees of the International Minerals and Chemical Corporation, Chicago have been granted an 8-cents-an-hour wage increase by virtue of a new contract drawn up between International and Local 448 of the United Gas, Coke, and Chemical Workers Union of C.I.O.

Norman J. Dunbeck

Gypsum, Plaster Industries Flourish on Island of Cyprus

The Hellenic Mining Company's new subsidiary, The Gypsum and Plasterboard Company, on the island of Cyprus exported 50,094 tons of raw gypsum in 1950. This firm is erecting a modern stucco and plasterboard plant.

Another industry of Cyprus, the Limassol Chemical Products Company, exported 3,431 tons of plaster of Paris in 1950.

• In a time of continuing crisis the American National Red Cross faces a tremendous challenge. In addition to serving at military installations in this country and abroad, the Red Cross has performed such imperative assignments as giving first aid (over 1,000,000 certificates last year), collecting blood for the armed services, furnishing aid to Midwest flood sufferers, conducting volunteer service, training home nursing students, and nurses's aides, supervising Junior Red Cross activities, arranging loans to servicemen, and many other "musts". We believe that those who can help to support the great work of the Red Cross will wish to do so at this season during its 1952 campaign.

Eastern, Midwest Totals Of 1951 Building Contracts Show Increase over 1950

Total construction contract awards in 1951 for the 37 states east of the Rockies amounted to $15,751,131,000 or 8 percent more than the 1950 total of $14,501,055,000. The year end total was announced by the F. W. Dodge Corporation.

Non-residential awards for 1951 reached $6,822,513,000 or 31 percent more than the 1950 total. Residential contracts amounting to $6,205,388,000 were 8 percent below the 1950 comparative figure.

Public and private works and utilities had a final total of $2,723,230,000 or 6 percent higher than the total for the previous year.

Virginia-Carolina Chem. Corp. To Expand Florida Facilities

The Virginia-Carolina Chemical Corporation plans to add a concentrated superphosphate manufacturing plant to its production facilities at Nichols, Fla. Included in the setup is a provision for uranium extraction.

Phosphate rock requirements will be supplied from the firm's mines in the area. Virginia-Carolina owns 37,000 acres in the phosphate field, and produces 1,250,000 tons yearly. There is enough high-grade rock in the property to maintain the present production rate for an estimated 20 to 25 years, according to Joseph A. Howell, president of the firm.

DMEA Is Successor to DMA In Mineral Exploration Work

Secretary of the Interior Oscar L. Chapman has announced a change in the name of the Defense Minerals Administration to Defense Minerals Exploration Administration.

The new name of this Interior Department defense agency, Secretary Chapman stated, more nearly describes its duties, as the mineral programming, procurement, and claimant agency functions that were administered by the former DMA have been transferred to the Defense Minerals Procurement Agency, which was established in accordance with Executive Order 10281 of August 28, 1951.

C. O. Mittendorf, formerly Acting Administrator of DMA, currently is serving as Acting Administrator of DMEA. He will report directly to Robert R. Rose, Assistant Secretary of the Interior for Mineral Resources, to whom Secretary Chapman has delegated responsibility for supervision of DMEA, as well as the Bureau of Mines and Geological Survey.

The mineral exploration program which was inaugurated by DMA under authority of the Defense Production Act will be continued and expanded by DMEA, Assistant Secretary Rose said. The extensive search for new and unproved mineral deposits in the United States which the program has stimulated, he added, must be intensified to help assure the future security of the nation.

Improved New Method Of Artificial Respiration Winning Wide Approval

An improved method of artificial respiration, known as the back-pressure arm-lift has been adopted by the American National Red Cross, the armed services, several industrial firms, and other agencies and organizations.

Used in Norway, Denmark, and other European countries for many years, the method permits greater exchanges of air and can be administered without undue fatigue to the operator.

Research leading to the change in method pre-dates World War II, when investigators first doubted the superiority of the prone pressure method. Since that time the Red Cross has conducted extensive studies in the fields of respiration and asphyxia. The armed forces became intensely interested in artificial respiration in connection with the possibility of poison gas or nerve gas warfare. About two years ago the Army Chemical Corps assigned four research teams to study comparative values of various methods.

The results of the research showed that the prone pressure method was less effective in the amount of air exchanged. It compresses the chest but does not actively expand it. However, in the two-phase methods—such as the back-pressure arm-lift, the hip-lift, and the Silvester—the chest is actively expanded and compressed by the rescuer.

Research also showed that the hip-lift back-pressure method and the hip-roll back-pressure method are difficult to perform and cannot be done at all by frail rescuers on heavy victims. The Silvester method, for which the victim is placed on his back, was considered unsatisfactory for use by the general public since it is difficult to keep the air passages open.

The back-pressure arm-lift method was recommended because it does not tire the rescuer unduly, can be performed by a small person on a heavy victim, and is relatively easy to teach.

This evidence was presented at a meeting of 18 agencies and organizations, called by the National Research Council at the request of the Red Cross and the Public Health Service of the Federal Security Agency. Since that meeting, when the Research Council recommended the back-pressure arm-lift method as preferable, the following agencies have adopted the new method: the armed forces, American Telephone and Telegraph Co., U. S. Bureau of Mines, Boy Scouts of America, Camp Fire Girls, Inc., Council on Physical Medicine and Rehabilitation of the American Medical Association, Federal Civil Defense Administration, Girl Scouts of the U.S.A., Public Health Service of the Federal Security Agency, the Red Cross, and the Y.M.C.A.

The Red Cross will include the new method in first aid and life saving courses as soon as possible. Three million supplements on the new system are being printed for inclusion in its first aid and water safety textbooks. The supplement will be available through Red Cross chapters at no charge.

The Red Cross pointed out that because of the widespread teaching program, the changeover cannot be accomplished immediately. Millions of persons already trained in the prone pressure method, which has saved many lives, should continue to use it until they have received training in the new method.

The technique of the back-pressure arm-lift method is a follows: The victim is placed face down in a prone position with arms overhead and bent at the elbows, one hand upon the other, and the head turned to one side so that the cheek rests on the hands. The rescuer, on one or both knees at the victim's head, places his hands on the victim's back, with thumbs just touching and the heels of the hands just below a line running between the victim's armpits. The rescuer rocks forward slowly, elbows straight, until his arms are almost vertical—exerting steady pressure upon the back. Next, the rescuer rocks backward slowly and slides his hands to the victim's arms, just above the elbows, which are raised until resistance is felt at the victim's shoulders. Then the arms are dropped. This completes a full cycle, which is repeated 12 times a minute.

• The top illustration shows the beginning of the cycle, in which the operator places his hands on the victim's back with thumbs touching and heels of hands below the dotted line.

• The second position shows the operator rocking forward slowly, keeping his elbows straight, until his arms are approximately vertical, exerting steady pressure upon the chest.

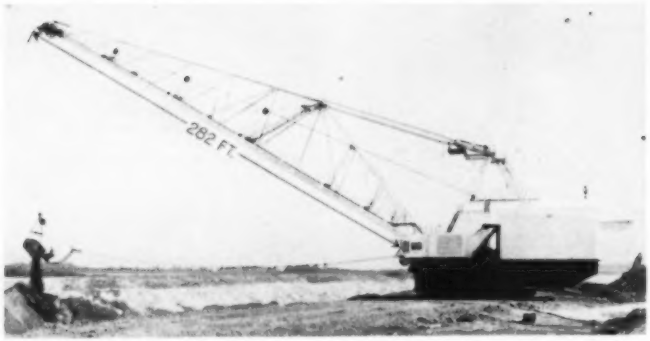
• In the third position the operator rocks backward, slowly sliding his hands to the victim's arms just above the elbows.

• Final position: operator continues to rock backward, raising the arms until resistance and tension are felt at the victim's shoulder. Then he drops the arms, and thus completes a full cycle.

Swiss Firm Moves to Build Cement Plant in Canada

A plan for the establishment by Swiss interests of a $5,000,000 cement industry in the municipality of Villeneuve, formerly Beauport East, Quebec, Canada, was recently revealed by the legislature.

Under the name of Atlas Realties Company, a Swiss-owned company incorporated in March, 1951, presented legislation covering the establishment of the industry to the private bills committee of the Legislative Assembly. The bill was presented by Albert Dumontier, who stated that the firm plans to ship equipment valued at $4,000,000 to Canada. He added that Atlas Realties has paid $572,000 for 4,000,000 sq. ft. of land at Villeneuve. Construction must begin within 15 months after approval of the bill, and taxes must be paid at least from January 1, 1955. The tax reduction is to be good for five years. After that the company will pay the normal rate on its municipal valuation.



• When this monster dragline, said to be the world's largest, lowers the boom, it's a 282-ft. menace.

1,600-Ton Walking Dragline Used in British Operation

The biggest walking dragline in the world was recently placed in operation at the Stewart and Lloyds iron strip mine near Corby, England. The machine is used for overburden removal and is expected to dig to a depth of 100 ft.

The bucket, which weighs 22 tons, has a capacity of 20 cu. yds. and weighs more than 50 tons when full. The digging cycle is about 60 seconds. Double draglines and hoist lines are used. Draglines are 2¼ in. in diameter, and hoist lines 2 in., with a maximum pull on each of 100 tons. The boom is 282 ft. long and is 175 ft. above ground in working position.

Here are a few other interesting facts about the machine: The gross weight is 1,600 tons; the tub has a diameter of 48 ft.; the step is 7 ft. at each move; the entire machine is electrically driven, with current brought in at 6,600 volts and converted to run the 14 motors which have a combined rating of 3,150 hp.

The dragline was erected at the quarry. Ransomes and Rapier built the machine, except for the boom. This was constructed by Tubewrights, Ltd., a subsidiary of Stewart and Lloyds steel works. The life of the machine is estimated at 33 years; it was four years in planning and building. All machinery is controlled by one operator, who has a glass-enclosed air-conditioned cab.

Barnes, Smith Named To Important Posts On Smith Eng. Staff

Smith Engineering Works, Milwaukee, Wis., manufacturers of machinery for mines, quarries, gravel pits and contractors, have announced a change in officer personnel.

Donald D. Barnes, formerly executive vice-president, has been made president and treasurer, succeeding the late Charles F. Smith, who died on December 10, 1951. Gerald L. Smith, formerly vice-president and director of sales, has been made executive vice-president and director of sales. Thomas S. Smith has been named vice-president.

The new president, Donald D. Barnes, joined the Telsmith organization in 1919. Before becoming executive vice-president, he was successively Chicago district manager, New York district manager, and sales manager.

Gerald L. Smith, the new executive vice-president and director of sales, advanced through the factory engineering and sales departments to vice-president and director of sales.

Thomas S. Smith, the new vice-president, has held positions in the service and sales departments.

The other officers of the company are Harvey H. Rumpel, vice-president and manager of works; Alexander L. Munro, secretary and chief engineer; Edgar P. Farrill, assistant secretary; and William G. Simerson, assistant treasurer. H. H. Rumpel and A. L. Munro have been with the company for 43 years and 38 years.

U. S. Mineral Production Shows 10 Percent Increase

Responding to the urgent demands of defense mobilization, the mineral industry of the United States increased its production by almost 10 percent in 1951, according to a year-end statement by Secretary of the Interior Oscar L. Chapman. Another substantial increase, although possibly not as great, is in prospect for 1952, Secretary Chapman stated.

The statement was based upon a summary prepared by the Bureau of Mines, which showed an increase in the total value of mineral production in continental United States from approximately $11,800,000,000 in 1950 to an estimated $13,300,000,000 in 1951—a 13 percent increase measured in value terms. The biggest expansion—an increase in value of over 25 percent—occurred in metals, whose production rose from $1,300,000,000 in 1950 to almost $1,700,000,000 in 1951. Production of fuels and other nonmetals rose about 11 percent each in total value.

These increases reflect, in part, the higher prices for minerals which prevailed during 1951. The prices of nonferrous metals, for example, increased an average of more than 20 percent from 1950 to 1951, so that despite a value increase of 27 percent, the actual physical increase in nonferrous metal production was only about 3 percent and in metal production as a whole about 9 percent. Prices of nonferrous metals went up much more than those of most other minerals, however; the actual physical increases in production of fuels and other nonmetallic minerals were each approximately 10 percent.

Production of nonmetals other than fuels—mostly raw materials for the construction and chemical industries—advanced more than 10 percent in 1951. There were substantial increases in certain areas, such as cement, whose production increased from 229,000,000 to an estimated 247,000,000 barrels; sand and gravel, up from 258,000,000 to 300,000,000 tons; stone, which increased from 251,000,000 to approximately 280,000,000 tons; and sulphur, which increased from about 5,800,000 to almost 5,900,000 tons.

National interest centered in some of the strategic minerals included in this group, such as sheet mica, radio-grade quartz, talc, graphite, and asbestos. For some of such minerals, exploration assistance grants by the Defense Minerals Administration (more recently Defense Minerals Exploration Administration) were of particular importance in increasing potential domestic production. Heavy imports of sheet mica, quartz crystals, and graphite will still be needed to meet domestic requirements, but the United States is approaching a high degree of self-sufficiency in block talc and kyanite.

As supplier of about 95 percent of the world's elemental sulphur, the United States sulphur industry was under pressure throughout the year for maximum production. One of the most basic industrial chemicals, sulphur is used in the manufacture of fertilizer, in petroleum refining, in the production of steel, zinc, aluminum, magnesium, and copper, and in many other industrial applications. The International Materials Conference, which undertook during the year to allocate sulphur to the various countries of the free world, estimated a world-wide shortage of about 1,000,000 tons.

The accompanying table summarizes the mineral production record of the last four years.

Value of Mineral Production of Continental United States, 1948-51
(Millions of Dollars)

	1948	1949	1950 (Preliminary)	1951 (Estimated)
Nonmetallic minerals				
Fuels	9,495	7,886	8,665	9,625
Other	1,559	1,567	1,766	1,960
Total nonmetallic	11,054	9,453	10,431	11,585
Metals	1,219	1,101	1,339	1,685
Grand total	12,273	10,554	11,770	13,270

N. B. All tonnage figures in this release are short, or "net" tons.

Pacific Carbide & Alloys Adds 3rd Lime Calciner At Portland, Ore., Plant

Pacific Carbide & Alloys Company utilizes a great deal of chemical-grade pebble lime in the manufacture of calcium carbide at its Portland, Ore., plant.

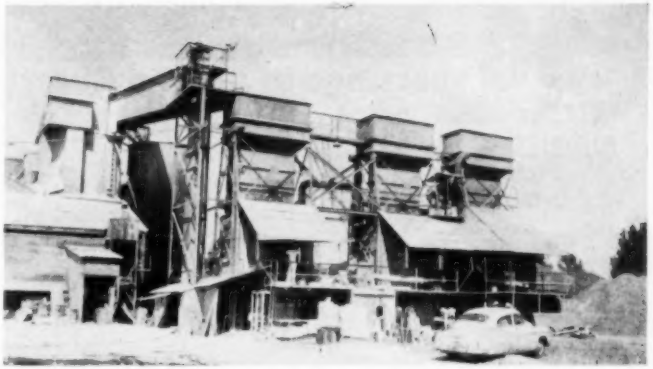
Until about four years ago the concern purchased its burned-lime requirements, shipping it long distance by rail. In 1947, however, a lime plant was installed adjoining the carbide operations in Portland. This consisted of two No. 2 Ellernan calciners. (See PIT AND QUARRY, September, 1947, pp. 112-113.) Limestone was purchased principally from the Enterprise Lime Company in northeastern Oregon and the Morcrop Lime Company, Arlington, Wash.

In 1951 Pacific Carbide's lime requirements began to exceed the 25-ton-per-day combined capacity of the 2-kiln installation, so a third unit was purchased from the Ellernan Company at Salt Lake City. It was installed in line with the two existing units, bringing capacity to 38 or 40 tons per 24-hr. day.

Meanwhile, the company had acquired by outright purchase the properties and plant of the Enterprise Lime Company at Enterprise, Ore., 300 mi. distant. Stone is quarried, crushed, sized to 1½ by ½ in., and washed at Enterprise before it is shipped by railroad to the Portland plant.

Loading the surge hoppers above the calciners is done by crane, but this method is shortly to be supplanted by a mechanized elevator-and-conveyor system.

The Ellernan calciners are gravity-fed from the surge hoppers through transverse openings in the calciner hoods. Preheating of the stone takes place as it passes through the hoods to the calcining chambers, utilizing the rising hot gases. The burned lime is cooled at the bottoms and carried by a common elevator and conveyor system to the carbide plant. Firing of the calciners is done with Ray oil-burners, and the entire installation is well instrumented for close control at each stage of production. Thomas Waters is general manager at Portland.



• These three calciners produce 38 to 40 tons of chemical pebble lime daily. The one at the extreme right is the newest.

Eells Plan Bypasses RFC To Get 4½ Million for Basic

One American industrialist who wanted funds for expanded plant capacity did *not* accept help from the Reconstruction Finance Corporation. Howard P. Eells Jr., president of Basic Refractories, Inc., worked out, instead, a plan in which a merger, a V-loan, and a stock sale were involved to raise the needed $4,500,000. The stockholders, at a special meeting, approved their president's proposal.

In response to the rearmament program's need for dolomite refractories, Mr. Eells decided that two additional kilns at the firm's Maple Grove, O., plant were imperative. These, each about 390 ft. long, would cost about $3,500,000, and the firm would also need more working capital. Although the RFC offered to lend Basic $4,000,000 for ten years at 5 percent, after the assets of the Euclid Corporation, a family holding company, had been thrown in, and a subsidiary had been created to build the kilns, Mr. Eells decided to turn the offer down. He pointed out that the loan would have brought Basic's long-term debt to $6,450,000. Besides, some RFC deals were just then beginning to taint the air with an unpleasant aroma.

Mr. Eells came up with a substitute plan. Basic Refractories will acquire the 250 shares of Euclid Corp. in exchange for 74,475 previously unissued shares of Basic common. After acquiring Euclid, Basic will merge it with Defense Project, Inc., the subsidiary formed to build the kilns. DPI will borrow $2,625,000 from the Chase National Bank of New York on a V-loan at 5 percent.

To build the kilns, DPI will need another $875,000, which it will obtain from Basic, plus $740,000 in working capital. Basic will get the $1,615,000 by the following arrangements: by selling Howard Eells 30,000 authorized but unissued common shares for $10 each; and by selling to Investors Syndicate of America, Inc., a subsidiary of Investors Diversified Services, Inc., 10,000 shares of new 5¾ preferred and 35,000 common shares, a transaction expected to pick up $1,315,000.

H. J. Buck and B. E. Gray Named To Head Asphalt Institute

The following officers were elected at the Asphalt Institute's annual board of directors meeting, held recently in New York City:

Chairman of the executive committee, Harold J. Buck, general sales manager, American Liberty Oil Company, Dallas, Tex.; president, Bernard E. Gray (re-elected); vice-presidents—John D. Mohler Jr., Pan-Am Southern Corporation for Division I; D. H. Jenks Jr., Ashland Oil & Refining Company for Division II; H. G. Nevitt, Socony-Vacuum Oil Company, Inc., for Division III; M. O. Huntress, Allied Materials Corporation, for Division IV; Raymond Harsch, Shell Oil Company, San Francisco, for Division V.

The five vice-presidents, together with Messrs. Buck and Gray and Frank R. Field, Esso Standard Oil Company, *ex-officio* as retiring chairman, constitute the executive committee for the coming year.

No Books in This Library But Heavy Reading Aplenty

A library without a single book on its shelves is the unique institution established recently at Minneapolis, Minn., by the United States Bureau of Mines. Records of another kind, however, are being gathered there—rock cores which may be "read" for important data on formations of specific geographic areas.

Each year thousands of feet of rock core are recovered during drilling in the constant search for new mineral reserves. Many specimens are discarded after one examination, and are thus lost to the mineral industries, a fact which led to the establishment of the new Mines Bureau library. On its racks students, producers, and others interested in geology and mineralogy will find many cores which have been gathered by the bureau. The library will serve the mineral industries of the North Central states, but cores from other sections will be welcomed.

• Librarian puts a box of cores in place.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

THE February, 1922, issue of PIT AND QUARRY was largely a convention reports issue, with emphasis on crushed stone. There was a complete report of the National Crushed Stone Association convention at Chicago on January 17 and 18, illustrated with original sketches of outstanding personalities present. Only a few of these still come to the conventions, including John Rice Sr., James Savage, Harvey T. Gracely, and D. D. Guilfoil.

One of the hottest subjects discussed at this meeting was promotion. The general sentiment was that many important potential markets for stone had not yet been developed. A. Acton Hall, of Piqua, O., made the suggestion that the association should have its own technical research department to explore these possibilities and to render other important services. A committee was appointed to look further into the matter. Machinery manufacturers were well represented on the program and apparently gave the producers much important operating data.

The officers elected for the coming year were F. Scott Eames, president; F. W. Schmidt and W. H. Hoagland, vice-presidents; A. J. Sullivan (re-elected), treasurer; and A. P. Sandles, secretary.

The National Agricultural Limestone Association held its annual meeting on January 10 and 11 at Columbus, O. This group decided to go after the huge potential of business in this field more intensively than ever before and made this apparent by electing E. M. Lamkin of the Kelley Island Lime & Transport Co., Cleveland, O., as its new president. Mr. Lamkin had done an excellent job for his company in promoting the sale of limestone, and he proposed to do the same for the entire industry. Other officers elected were R. J. Fuller, vice-president; W. H. Hoagland, treasurer; A. P. Sandles, secretary; and Claude L. Clark, assistant secretary.

The Indiana Crushed Stone Association held its annual meeting in Chicago on January 17 and set a record of perfect attendance by all its members. Promotion, new uses, specifications, and freight rates were among the subjects discussed. The officers elected were Charles N. Hodgin, president; Bernard J. McNulty, vice-president; B. G. Pogue, treasurer; and F. W. Connell, secretary.

The Indiana Sand & Gravel Producers' Association met on January 10 and 11 at Indianapolis. Stress was laid on the necessity for tightening production controls to meet increasingly stringent specifications and to make new types of products. Officers elected were M. A. Neville, president; George J. Nattkemper, vice-president; and Jesse Shearer, secretary-treasurer.

Two papers presented at the N.C.S.A. convention were reprinted in full because they keynoted the thinking at this and other meetings held. One was titled *Manufacturers, Not "Stone Diggers,"* by Harry H. Brandon of the Ohio Marble Company, Piqua, O. In this paper the shortcomings of crushed stone for different uses were pointed out in detail and suggestions were made for improvement. In his address *Crushing Plant Engineering*, Brownell McGrew of the Allis-Chalmers Mfg. Co., Milwaukee, made many sound suggestions on what to do and what not to do when building a new crushed stone plant or improving an old one.

Apparently in those days the presentation of reviews of the past year and predictions for the coming year were not emphasized as they are now. Several reviews of general business conditions and construction forecasts were presented.

Plants were represented by a complete description of the new operation of the Elkhart Lake Sand & Gravel Company at Elkhart Lake, Wis. This plant was designed by J. R. Bakstad of the Good Roads Machinery Company. It was a two-man plant with a capacity of 500 tons daily.

In the news was the formation of the Kanawha Sand Company at Parkersburg, W. Va., and the Muskogee Sand & Gravel Company at Muskogee, Okla. The New England Lime Company was reported planning to rebuild its plant at New Milford, Conn., which had been destroyed by fire at a loss of $200,000; and the Standard Slag Company planned to rebuild its $75,000 plant at Sharpsville, Pa., also destroyed by fire.

The Cape Girardeau Portland Cement Company, Cape Girardeau, Mo., was planning extensive additions to its plant, and the Universal Portland Cement Company, Universal, Pa., had a similar program under way. The Globe Portland Cement Company of Minneapolis had awarded a contract for the construction of a $1,500,000 plant at Dubuque, Ia. The White Star Portland Cement & Coal Company of Nazareth, Pa., had plans under way for a $3,000,000 plant at Village Springs, near Birmingham, Ala.

A comprehensive survey of domestic mica, including figures on American production and consumption of this strategic mineral commodity, the location of deposits, knds of mica mined in this country, and other useful information, has been completed and made public by the U. S. Bureau of Mines. The information is contained in the free circular 7617, *Domestic Mica*, which may be obtained from the Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

E. Lee Heidenreich Jr. Opens Branch Office in Chicago

E. Lee Heidenreich Jr., consulting and designing engineer of Newburgh, N. Y., has announced the opening of a Chicago office, succeeding Brunner & Laws, at 9 South Clinton Street, Chicago 6, Ill.

Mr. Heidenrich will divide his time between the main office at Newburgh and the new branch office. A. C. Brunner will be in charge of the Chicago office; and after a two-months' leave of absence, Theo Laws will again be actively engaged at the same location.

Photograph by Bachrach

E. Lee Heidenreich

Plans are already under way to make the National Lime Association's next annual meeting, its 50th, a festive and outstanding occasion. The Golden Anniversary celebration will be held in conjunction with the regular convention at the Homestead, Hot Springs, Va. With 1952 the association began its 50th year in continuous operation.

The Pacific Sand and Gravel Company of Centralia, Wash., has started installation of a $75,000 asphalt plant near Raymond, Wash. Two major paving projects in that area have been assigned to the firm—the $215,000 highway improvement on Highway 13-A in Pacific County, and surfacing the Willapa Harbor airport.

Koppers Company, Inc., Pittsburgh, Pa., has been awarded a contract to design and furnish equipment for a chemical plant to be erected at Torrelavega, Spain, it was announced by Joseph Becker, vice-president and general manager of Koppers Engineering and Construction Division. The contract signed by Koppers is with Real Compania Asturiana de Minas at Torrelavega.

Pennsylvania Stone Producers Assn. Names Detwiler 1952 President

• Adam Eidemiller, Eidemiller Enterprises, Greenburg, Pa.; J. C. Showalter, J. C. Showalter Co., Blue Ball, Pa.; P. I. Detwiler (new president of the association), New Enterprise Stone & Lime Co., Inc., New Enterprise, Pa.; F. I. Narehood, Narehood Bros., Milton, Pa.; and Wilmer Eidemiller, Eidemiller Enterprises.

THE Pennsylvania Stone Producers Association held a business meeting in the Assembly Room of the Hotel Penn - Harris, Harrisburg, Pa., on January 9, 1952, with a record attendance of producers and friends.

President T. C. McPoyle appointed W. W. Hammer, Leonard Fry and Wilmer Heyer to a committee to present nominations for the officers and directors for the year 1952. The new officers are Paul I. Detwiler, president; Robert Garman, vice president; H. M. Binkley, treasurer; and Walter Fehr, secretary. J. P. Peacock, J. C. Showalter, Paul Walker, F. I. Narehood, Lewis M. Nauss, and Adam Eidemiller comprise the board of directors. The newly-elected president, Mr. Detwiler, named T. C. McPoyle and H. M. Binkley to the executive committee.

O. M. Graves made a detailed report on the slag versus stone situation. H. H. Wagner made the general manager's report, which indicated that the association represents more than 90 percent of all the commercial crushed stone plants in Pennsylvania. The tonnage of commercial stone produced for 1951 represented the largest production in the history of the industry. He also reported that the crushed stone and allied industries were successful in having the percentage depletion provision of the Federal Revenue Act of 1951 applied to crushed stone to the extent of 5 percent. In the case of calcium carbonates and magnesium carbonates, 10 percent is deductible, and in the case of chemical grade limestone and metallurgical grade limestone, 15 percent. The full text of the pertinent provisions are contained in Section 114(b) of the Internal Revenue Code, as amended by Section 319 of the Revenue Act of 1951. This Amendment applies to the taxable years beginning after December 31, 1950.

This business meeting adjourned to the ballroom of the same hotel, where an open aggregates producers' meeting was conducted. Members of the slag and gravel associations were invited to participate in this meeting.

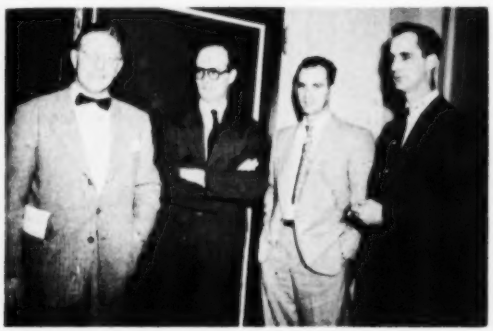
Past-president T. C. McPoyle presided during the aggregates meeting. E. L. Schmidt, acting secretary of Pennsylvania Department of Highways, made the opening address and expressed the gratitude of the department for the fine co-operation it received during the busy 1951 construction year.

C. H. Buckius, assistant chief engineer, Department of Highways, presented the estimated quantities of materials which will be required for the 1952 program. These requirements were as follows: 1,628,735 tons of bituminous concrete; 2,674,572 barrels of cement; 1,626,971 tons of sand; 150,283 tons of rein-

(*Continued on page* 85)

• Bill Faylor, president of APC, Faylor Lime & Stone Co., Middleburg, Pa.; E. E. Uhler, E. J. Breneman, Inc., Pottstown, Pa.; R. H. Edgarton, A. R. Amos Co., Philadelphia; and E. J. Breneman.

• J. Fred Coleman Jr., Bradford Hills Quarry, Inc., Downingtown, Pa.; and John G. Galt, Ardell Wilson, and Howard T. Galt, all of Keystone Trappe Rock Co., Glenmore, Pa.



First Annual Meeting of N.A.L.I. Draws Attendance of 500

By WALTER E. TRAUFFER

another ON THE SPOT report

THE first annual convention of the National Agricultural Limestone Institute, held January 15, 16 and 17, 1952, at the Statler Hotel, Washington, D. C., was a success in every way. This thriving new association, formed at the first of the year through the merging of the Agricultural Limestone Institute and the National Agricultural Limestone Association, got off to an excellent start; and it promises, through the combined efforts of the entire industry, to do a better job than was formerly possible. At the directors' meeting on the first day and during the subsequent two days of convention sessions and other affairs it was evident that all serious differences in the aims and thinking of the two groups have been adjusted into one united organization. The two former associations each had important but widely different major objectives, and N.A.L.I. will carry on both of these with equal emphasis.

From the standpoint of attendance, this meeting set a new record of nearly 500 producers and guests; and the quality of the program and the caliber of the speakers was at least up to previous high standards. Subjects covered at this convention included everything of importance to the industry, including percentage depletion, ceiling prices, promotion and selling, operations, etc., in addition to various items of association business. At the business meeting an expanded promotional campaign was authorized which will be tied in with the National Grasslands Program, in order to encourage the increased use of agstone by farmers. Executive Secretary Robert M. Koch is on the advisory committee of the Program.

N.A.L.I. officers—K. K. Kinsey, Concrete Materials & Construction Co., Cedar Rapids, Ia., first vice-president; R. M. Patton, Plum Run Stone Div., New York Coal Sales Co., Columbus, O., president; and V. C. Morgan, Kentucky Stone Co., Louisville, Ky., treasurer.

One of the most significant actions taken by the convention was a nearly unanimous decision to have the N.A.L.I. Percentage Depletion Committee proceed to prepare the industry's case for obtaining 15 percent percentage depletion. Members are urged to await further word from the committee before filing. The committee consists of Chairman Horace C. Krause, Earl Heckathorn, William E. Horne, Charles Rich, and Vincent Shea.

The annual reception and banquet was an overflow affair which attracted practically every producer and about 125 congressional and governmental guests. Robert M. Patton, president of N.A.L.I., did an outstanding job of introducing the guests at the head table and the speaker. David P. Livingston, "America's Funniest Farmer", presented an entertaining mixture of humor and seriousness in his message on conservation.

There was also a record attendance of ladies at this convention, and an excellent program was arranged for them by Mrs. Alvin Armbrust and Mrs. Arthur Alvis. The program included specially-arranged tours and shopping trips, as well as attendance at the luncheons, reception, and banquet.

Officers and Directors In selecting their officers, executive committee, and directors for 1952, the members did an excellent job of blending men of ability from both former associations, at the same time giving fair representation to each agricultural limestone producing section of the country. The following officers were elected:

Robert M. Patton, Columbus, O., president; K. K. Kinsey, Cedar Rapids, Ia., first vice-president; Robert M. Koch, Washington, D. C., executive secretary; Verne C. Morgan, Louisville, Ky., treasurer.

Named as regional vice-presidents were: Harry E. Battin Jr., South Bethlehem, N. Y.; Joseph J. Griesemer, Billings, Mo.; N. E. Kelb, Indianapolis, Ind.; C. M. Kirtley, Des Moines, Ia., J. Larry Fay, Chicago, Ill.

Members of the executive committee are: Harry E. Battin Jr., S. Bethlehem, N. Y.; Harry Clark, Chicago, Ill.; Horace Krause, St. Louis, Mo.; John Riddle, Marion, Kan.; Arthur Alvis, Butler, Mo.; Earl Heckathorn, Delphi, Ind.; Clarence Munz, Utica, N. Y.; N. G. Farber, Franklin, N. J.

Members of the board of directors include Arthur Alvis; Alvin R. Armbrust, Washington Court House, O.; Harry E. Battin Jr.; W. S. Black, Quincy, Ill.; Michael Brisch, Manitowoc, Wis.; C. A. Broecker, Kentland, Ind.; W. F. Childs III, Towson, Md.; Harry A. Clark; William J. Clark, Munnsville, N. Y.; W. Ray Clark, Plattsburg, Mo.; Charles Coburn, Waukesha, Wis.; R. D.

The executive committee: Arthur Alvis, Arthur Alvis Co., Butler, Mo.; K. K. Kinsey, first vice-president; H. C. Krause, Columbia Quarry Co., St. Louis, Mo.; C. A. Munz, Eastern Rock Products, Inc., Utica, N. Y.; R. M. Patton, president; E. L. Heckathorne, Stuntz-Yeoman Co., Delphi, Ind.; J. H. Riddle, Riddle Quarries, Inc., Marion, Kan.; H. A. Clark, Consumers Co., Chicago, Ill.; Nick Farber, Farber Limestone Co., Franklin, N. J.; H. E. Battin Jr., Callanan Road Improvement Co., South Bethlehem, N. Y.; and V. C. Morgan, treasurer.

Davis, Sparta, Tenn.; John M. Deely, Lee, Mass.; W. D. Dillon, Columbus Junction, Ia.; James Eells, Cleveland, O.; L. R. Falk, St. Ansgar, Ia.; N. G. Farber; J. L. Fay; Leonard Fry, Mercersburg, Pa.; Herbert C. Gray, Tulsa, Okla.; Merrill M. Green, Carrollton, Mo.; Maurice H. Greenberg, Joliet, Ill.; A. K. Hausmann, Cleveland, O.; Earl L. Heckathorn; Philip E. Heim, Lowellville, O.; D. H. Henderson, Hamilton, Ontario, Canada; W. E. Hewitt, East St. Louis, Ill.; Earl P. Holwadel, Cincinnati, O.; William E. Horne, Newton, N. J.; Russell W. Hunt, Neosho, Mo.; K. K. Kinsey; Horace C. Krause; Richard Lutz, Oshkosh, Wis.; W. H. Margraf, Columbus, O.; R. E. Meshberger, Columbus, Ind.; Floyd Millen, Farmington, Ia.; Verne C. Morgan; J. B. Mount, Shouns, Tenn.; Clarence A. Munz; J. E. Ott, Bay Port, Mich.; Robert M. Patton; Robert J. Pleasant, Tulsa, Okla.; T. C. Pollock, Burlington, Vt.; Russell C. Prall, Milroy, Ind.; John R. Rice, Buchanan, Va.; Charles Rich, Swanton, Vt.; John H. Riddle; Fred Roberts, Norristown, Pa.; Barney T. Scharbach, Essexville, Mich.; Robert H. Schneckloth, Lowden, Ia.; R. M. Seifried, Findlay, O.; John J. Stark, Girard, Kan.; W. J. Stoeffel, Chicago, Ill.; W. E. Stone, Piqua, O.; Burt F. Taylor, Cowan, Tenn.; David P. Thomas, Fort Scott, Kan.; J. H. Wagner, Meadowview, Va.; F. Grove White, Stephens City, Va.; F. E. Wholaver, Bellefonte, Pa.; Myron J. Wurtenberger, Lockport, N. Y.

Executive Secretary's Report In his report to the members Robert M. Koch, executive secretary, said that business in general would be good in 1952, due chiefly to the tremendous backlog of defense work, and that the agricultural limestone industry would reflect this prosperity. He pointed out that although the agricultural appropriation was reduced from $285,000,000 to $256,500,000 the demand for agstone may actually increase as there will be a serious shortage of superphosphate and a less serious shortage of mixed fertilizers. The appropriation for 1952-3 is expected to go through without a cut, and a similar sum is expected to be included in the 1953-4 budget. With respect to percentage depletion, Mr. Koch said that the President is expected to ask for the elimination of some industries and for cuts in the allowances for others.

Robert M. Koch, executive secretary of N.A.L.I.

Mr. Koch said that N.A.L.I. will continue the N.A.L.A. promotional practice of sending four news releases twice monthly to 1,200 newspapers in the areas of member producers. Promotional efforts may be expanded to include radio, and the association has a wire recorder on which interviews can be recorded for this purpose. Another motion picture is also contemplated to follow up the very popular *Other Side of the Fence*. The association will continue to provide leaflets for members to distribute to farmers, and other types of promotional activities are also being considered.

Secretary of Agriculture The guest of honor at the luncheon on the last day of the convention was Charles F. Brannan, Secretary of Agriculture, who was able to break away between appearances before Congressional committees and who also passed up hearing Winston Churchill's speech in order to be there. In opening his address Mr. Brannan commented on the fact that he is appearing before many committees, making him one of the "most popular" men in Washington. Mr. Brannan said that the agricultural limestone industry is deeply involved in the welfare of the people as it helps to produce more food, not only for our high standard of living but also as a reserve for bad years and for our allies who are helping us to combat Communism. As an example, he said, the $50,000,000 worth of food sent a year ago to Yugoslavia may have helped to keep them from going over. Mr. Brannan said that we must instill in India and other countries the conviction that there is hope for a free world.

According to Secretary Brannan it is planned to produce 6 percent more food in 1952 than in 1951, which means 45 to 50 percent over prewar figures; and this will have to be done with about the same acreage and with about a million less men than before the war. The agstone industry is being counted on to help meet this goal. The speaker emphasized that even if we didn't have to export food, if we

R. B. Garman, Tyrone Lime & Stone Co., Tyrone, Pa.; Glenn Hawthorne, Whiterock Quarries, Bellefonte, Pa.; and F. E. Roberts, Evans-Roberts, Inc., Norristown, Pa.

Front row: H. H. Wagner, executive secretary, Pennsylvania Stone Producers Association, Harrisburg, Pa.; Philip Heim, Carbon Limestone Co., Hillsville, Pa.; Glenn Hawthorne; E. L. Rice, Rice Brothers, Waynesburg, Pa.; F. E. Roberts. Back row: H. H. Wagner Jr., Adams Agstone, Inc., Hanover, Pa.; R. B. Garman; L. S. Fry, Fry Coal & Stone Co., Mercersburg, Pa.; W. E. Horne, president, Limestone Products Corporation of America, Newton, N. J.

Errol Cook, vice-president, Hoosac Valley Lime Co., Inc., Adams, Mass., and Charles Rich, president, Swanton Lime Works, Inc., Swanton, Vt.

didn't eat better than ever before, etc., it would still be wise to keep our food production up to take care of emergencies. There is, he declared, hope for peace only if the free peoples of the world build up their military strength to a point where we are prepared if another war is forced upon us; and keeping our food production up to and over requirements is a necessary part of this program. While we are holding off Communism, he said, we must help other countries get back on a basis of self-sufficiency through their own efforts in order to present a united front.

Ceiling Prices A featured speaker on the program was Henry A. Huschke, head of the Agricultural Chemicals Section of the Office of Price Stabilization. As managing director of the now defunct Agricultural Limestone Institute, he was well known to the industry and has an excellent understanding of its problems. In discussing *Price Stabilization and the Agricultural Limestone Industry*, he first reviewed its history, beginning with the General Ceiling Price Regulation which on January 26, 1951, froze prices of nearly all commodities, including agstone. An industry advisory committee met on July 17, 1951, and on October 1, 1951, a tailored regulation for the industry, known as CPR77, became effective. Mr. Huschke then gave a brief summary of its provisions.

"CPR 77 governs the ceiling prices of agricultural liming materials at all levels, the producer, the wholesaler, and the retailer, and even the trucker.

"If you are a producer, and most of you are, you are given a choice of two methods of establishing your ceiling price for bulk material, f.o.b. your plant. First, you may choose to keep your ceiling price as established under GCPR. Second, you may compute a new ceiling by adding to your base period price the increase in production cost experienced by you between the two six-month periods, January-June, 1950, and January-June, 1951. The base period price is the highest price you charged each class of purchaser during the January-June, 1950, period. This provision is covered in Section 4 of CPR 77.

"Section 5 covers sales of liming materials in bags. It permits you, if you are the producer of the material, to add to your bulk f.o.b. plant ceiling price the customary differential you charged for bagging during the base period and your current cost of the bags, or the cost of the bags on June 30, 1951, whichever is lower.

"Where you as a producer make sales from a stockpile or railroad siding which is not located in the vicinity of your plant, you determine your ceiling price by adding to your bulk f.o.b. plant price

S. P. Stabler, extension agronomist, University of Maryland, College Park, Md.; W. H. Carroll, Harry T. Campbell Sons Corp., Towson, Md.; and S. R. Aldrich, extension agronomist, Cornell University, Ithaca, N. Y.

an amount equal to the cost to you of handling and transporting the material from the plant to the stockpile or railroad siding. This provision is covered by Section 6.

"Section 7 covers sales on a delivered or delivered-and-spread basis. Here again, you start with your f.o.b. plant price. You next determine what your customary differential, if any, was during the base period (January-June, 1950) and you add that sum to your f.o.b. plant or stockpile price. To this you also may add the increase in cost of transportation and handling over the average of such cost during the base period. The sum of these becomes your ceiling price for sales on a delivered or delivered-and-spread basis.

"Section 8 requires that you as a producer *must* report your ceiling prices per ton for each type of sale and to each class of purchaser to OPS in Washington within 60 days after October 1, 1951. A great many producers have sent this report to us, but I fear that a number of other producers have ignored or have been unaware of this requirement. If you have not sent this information to OPS, I urge you to do so immediately.

"With one exception, that is the end of the regulation insofar as producers are concerned. The next section, Section 9, applies to *nonproducers* of agricultural liming materials, namely, wholesalers and retailers, which includes truckers who buy the material from producers and sell it to farmers. Briefly, Section 9 permits the wholesaler or retailer to add to the ceiling f.o.b. plant or delivered price he pays the producer for the material, his cost of transportation, handling, and spreading and his base period (January-June, 1950) percentage markup.

"Section 10 applies to *new* sellers of agricultural liming materials. It is meant for you producers who start operating at a new point of production or for those of you, be you producers, wholesalers, or retailers, who did not sell during the base period (January-June, 1950). It merely requires that you determine your ceiling price by adopting the ceiling of your most closely competitive seller of the same or a similar kind and grade of agricultural liming material to each class of purchaser. For those of you who have portable equipment and move around from one deposit to another, there is a special provision which states that your ceiling price is the lower of the following: (a) your established ceiling at your nearest other point of production or, (b) the ceiling of your closest competitor who likewise uses portable equipment.

"The regulation also contains the usual provision that you must maintain your customary differentials to each class of purchaser and that you must keep base period and current records. It also prohibits sales at prices higher than your established ceilings and permits sales below your ceilings. The section on definitions defines some of the more important terms used in the regulation; you should become familiar with them.

"I also call your attention to the fact that CPR 77 does not govern the ceiling prices that may be charged for trucking. Transportation is under the General Ceiling Price Regulation. Anyone who requires an upward adjustment in trucking rates may apply to OPS under the provisions of SR 39 to GCPR. There are two forms that must be used. The motor carrier fills out Form 59, and the shipper must file with it Form 67.

"CPR 77 contains a formula in Section 4 for computing ceiling prices based upon cost increases which is very much like the highly publicized Capehart Amendment to the Defense Production Act. However, CPR 77 does not permit you to include

Senator George D. Aiken of Vermont and Victor Valach, Vermarco Lime Co., Proctor, Vt.

overhead as an item of cost. Those of you who may wish to include overhead in your computations will have to use either GOR 20 or GOR 21. These two General Overriding Regulations embody the provisions of the Capehart amendment. GOR 21 may be used by any of you. GOR 20 applies to those of you whose net annual sales did not exceed $250,000 during your last completed fiscal year ended no later than July 31, 1951. This latter regulation was designed for use by the small businessman whose books and records usually are not complete, as with larger concerns. If you use GOR 20, you file your information on OPS Public Form 106. When you file under GOR 21, you must use five different forms numbered 109, 110, 111, 112 and 113. All of these forms must be filed with the OPS District Office covering the area in which your principal place of business is located, unless your net annual sales were $1,000,000 or more, in which event the forms must be sent to the OPS National Office at Washington, D. C."

Grasslands Program *Lime in a Grassland Farming Program* was the subject of an address by Dr. Samuel R. Aldrich, extension agronomist at Cornell University, who has long been an advocate of improved Grassland Farming and the importance of lime in attaining this goal. Dr. Aldrich said that there is much misunderstanding of the meaning of the word "grasslands" in this connection; it is actually an inclusive term applied to most of the productive area of this country and it means the recognition of the value of grass for its own sake, with variations for different sections of the country. On a map he showed the areas in which certain types of agriculture are practiced and the trends that are developing. He also pointed out that the need for lime is limited almost entirely to humid areas where lime is leached out of the soil. In dry areas, he said, it accumulates in the soil.

In describing the functions of lime in crop production Dr. Aldrich said that it raises the pH of the soil, supplies calcium, releases phosphorus, increases microbial activity and releases nitrogen from organic matter. He also described the various methods of applying lime to the soil and said that best results are obtained when the depth of application is limited by the amount of lime applied. He described an instrument which has been developed for determining the lime needs of soils which can be made for about $2.00. More details on this device are promised at a later date.

In closing, Dr. Aldrich said that there is great need for a better selling job, especially through direct contact with the farmer. He pointed out that the future of agstone lies in bulk spreading and said that there were no spreader trucks in New York state in 1945, only a few in 1946, and at least 175 in 1951.

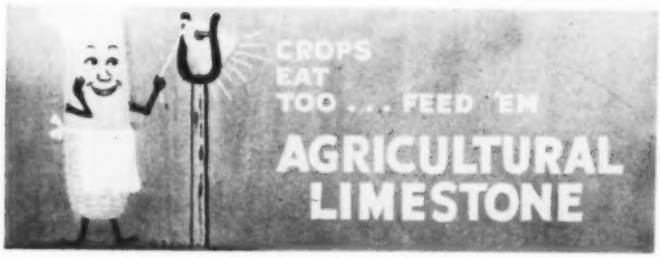
PANEL ON PROMOTION

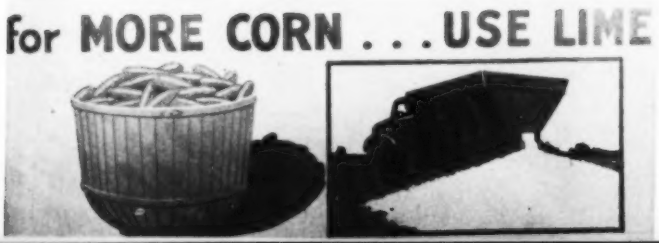
An important feature of the program was the panel on promotion which had on it four prominent producers from different parts of the country who described their own experiences with four different popular types of promotional activity. This session was competently presided over and guided by K. K. Kinsey (Concrete Materials Co., Waterloo, Ia.)

Company-Employed Agronomists Harry E. Battin (Callanan Road Improvement Co., South Bethlehem, N. Y.) discussed company-employed agronomists. He said that his company had been in the agstone business about eight years when, three years ago, it was decided to hire an agronomist to prepare for the time when government support might be reduced or entirely withdrawn. Advertisements are published in weekly and monthly publications in counties within the company's marketing area, stating that the company would be glad to send its agronomist to test the soil. In 1951 a total of 177 farms were so tested, and about three-fourths of these were the result of ads. The farmer accompanies the agronomist as he makes these tests, and this time is also used to sell him on liming. The agronomist also attends many meetings where he can help to promote the use of agstone, and exhibits are

Front row: D. W. Stock Jr., Faylor Lime & Stone Co., Middleburg, Pa.; F. E. Wholaver, Whiterock Quarries, Bellefonte, Pa.; and Senator Edward Martin of Pennsylvania. Back row: E. L. Rice; and W. C. Gerhart and L. S. Fry, Fry Coal & Stone Co., Mercersburg, Pa.

D. G. Farber, Farber White Limestone Co., Franklin, N. J.; W. E. Horne; W. B. Widnall, representative of 7th district, New Jersey, in Congress; W. C. Varey, Containers & Packing Div., National Production Authority, Silver Spring, Md.





held at county fairs at which attendance has averaged over 1,000 daily. The company also operates a farm on which there are demonstration plots and these are used to demonstrate the advantages of liming to farmers and groups of students.

In the question-and-answer period following this address it was brought out that some states require soil tests before issuing certificates, but in New York tests are made only to determine the amount of lime required. An Illinois producer said that there are 66 laboratories in the state of Illinois but that the delay in making tests and the two weeks which elapse before certificates are issued are discouraging to farmers and have reduced the sale of agstone. A producer from Massachusetts said that two counties there discontinued taking soil tests before allotments as the delays cut the use of agstone in half. The most popular test seems to be the one developed at Purdue University, which is based on color changes and determines the need for both agstone and fertilizer. This is said to be so simple that farmers and truckers can use it.

Billboards Floyd H. Millen (Valley Limestone & Gravel, Inc., Bonaparte, Ia.), described his company's experience with billboard advertising, using the posters prepared by the Iowa Agricultural Limestone Assn., Des Moines, Ia. He described the six posters designed for use during 1951 and showed miniature copies and a full-size sample poster which was hung on the wall of the meeting room. Each poster is designed to be used for a specific two-month period of the year and is aimed at the need during that period, as can be seen by looking at the accompanying illustrations and their descriptions. Each producer uses the same posters, but space is left at the bottom for his company name and address. Mr. Millen and several other producers present said that this was the most effective type of advertising they have. He advised others to select the best possible locations for their billboards, spots where they will be seen by as many prospective customers as possible; he also advised keeping them within the trade area, which in his case is about 30

These six billboard posters, prepared by the Iowa Agricultural Limestone Association, are being used by producers of that state, the first for November and December, 1951, the second for January and February, 1952, etc. At the bottom of each poster room was left for the producer's name.

miles in each direction from the plant.

Clint A. Allen, executive director of the Iowa association, gave some information on these posters and their availability to producers in all parts of the country. He said that over 30 Iowa producers are now using from one to six sets of posters each and that many are also being sold to other states. Most producers are renting billboards at a cost of about $14 per month each in Iowa. The rental fee to the property owner varies from $20 to $25 per month, depending on the location. Some producers prefer to build and place their own boards, but Mr. Allen advised against this plan, as they cost about $250 each to build.

Radio The use of radio to advertise agstone was the subject discussed by Robert J. Pleasant (Anchor Stone & Materials Co., Tulsa, Okla.), who stated that his company started using radio spot announcements six years ago and recently tried a half-hour program at noon on Sunday which has been very successful. The program features good music, stresses health from the soil, and has the minimum of sales talk. Mr. Pleasant said that a peculiar condition has existed in the vicinity of Tulsa. Here pellagra has been found only in one upland area where the soil is depleted, and never in the lowlands on the other side of the river. Doctors there have a kit for each area.

Mr. Pleasant then introduced Sam Snyder, who directs his radio program over Station KVOO and who has been in charge of the greener pastures program of that station for eight years. The 30 winners of the contest each year are taken on a trip to Chicago at a cost to the station of about $10,000. Mr. Snyder is also a member of the Grasslands Advisory Committee and is the current head of a national association of radio advertisers. He pointed out that more and more people have to be fed from each acre of our productive land—the figure was 10 in 1950 and will be about 15 in 1980. This job must be done by mechanization—the use of all modern and efficient methods, equipment and practices, including fertilizers, agstone, etc.

In answer to questions, Mr. Snyder said that the producer must select his radio station on the basis of how many people are reached for how much money, and that coverage outside of his marketing area is of little value. He said that the best times to reach farmers are from 6:00 to 7:00 a.m. and from 12:00 to 1:15 at noon. He advised against the use of spot announcements, as the cost is high for the amount of time involved. He said that it is also important to reach city dwellers with these programs. Mr. Pleasant endorsed this opinion with the statement that 75 percent of all his agstone sales outside of P.M.A. are to people who own farms but live in the cities.

Direct Advertising William E. Stone (Piqua Stone Products Division, Armco Steel Corp., Piqua, O.) said that his company uses other types of advertising but believes that direct advertising is an excellent

Here's More Proof

Liming Does Pay

Evidence Comes STRAIGHT FROM THE LAND In Clermont County

JOE RODGERS

Concord Farms

Williamsburg

Is well-known throughout the county for his farming ability. He tells of the great advantages of liming his soil in these words:

"Why do we use lime? We could go on and on, but here are a few facts. Our farm is very flat; several years ago our fields were packed and sour, the plow sole or hard pan was two or three inches below the surface. On some of the fields we used as much as ten tons of ground limestone, and the results are terrific. Today our soil is porous and friable, we have a beautiful stand of alfalfa. Liming is the cheapest money we have ever spent."

TAKE A TIP FROM CLERMONT FARMERS WHO KNOW. DO AS THEY ARE DOING — AND ENJOY THE SAME BENEFITS.

OHIO GRAVEL CO.

OGCO AGRICULTURAL MEAL

East 2700 Cincinnati, O. 5225 Eastern

Newspaper ad used with effect by the Ohio Gravel Co., Cincinnati, O.

supplement to them. He told of his own background in the use of agstone, which dates back to the early 1920's, when he was a county agent in Ohio. He went with Piqua Stone in 1925 and started to promote the use of agstone by sending direct mail to every farmer in southern Ohio. This was soon found to be wasteful, and a list of the leading farmers was compiled by the company's dealers and distributors. To those on this list are sent literature and also such items as notebooks with text on the pages; and it is found that few people throw these away. Other mailings include poems composed by Mr. Stone, which are on pertinent subjects. These, incidentally, indicate a definite talent on the part of the author. Some are on letterheads and others are on blotters. The following is a typical poem entitled "No Monkey Business" which was on a blotter with one of the popular monkey cartoons by Lawson Wood.

"When you find your ground is sour
And your crops are looking bum,
And you have no clover blossoms
For the bees that start to hum,
When you know that you are slipping
And you're feeling mighty blue
The question you will ask yourself
Is 'What am I going to do?'

"When you have tried most everything
And still you're feeling blue,
Just take a hunch from one who knows
The thing for you to do.
Just go to see our dealer
Walk up to him and say
'Ship me a car of limestone
And ship it right away.'

"And after you have received it
And spread it on the soil,
You'll get real joy and profit
For every hour you toil.
Next year you will feel better
When you see results of lime
And everything is blooming
In the good old summertime."

Newspapers Earl Holwadel (Ohio Gravel Co., Cincinnati, O.) said that his company has got excellent results from newspaper advertising in combination with the use of photographs. Pictures are taken of the winners of various farm and other agricultural contests, together with the winning item, whether it be a stand of corn, cattle, etc. These photos, which are given to the winners and distributed to bankers, and business men for exhibition, have created a good deal of interest and good will. In newspaper advertising it was found that standardized text was not as effective as more personalized information. The company has for years run a series of ads showing farmers on the job and quoting their remarks and opinions on what liming has done for them. These ads are brief and to the point and are aimed to prove that liming does pay. It is interesting that the company does not have to go out after endorsements. The farmers come in and volunteer the necessary information. (See sample on page 83.) Others have such eye-catching heads as: "Does Liming Pay?—Here's Your Answer"—"Liming—Best Dollar a Farmer Can Spend"—"Put in a Dollar—Get Four in Return," etc.

PANEL ON OPERATIONS

Another extremely important and interesting feature of the program was the panel on operations, which took up the afternoon of the last day of the convention. It was presided over by President Robert Patton (Plum Run Stone Div., New York Coal Sales Co., Columbus, O.), who assembled an outstanding group of experts to present the latest information on many subjects affecting the production of agstone.

Vibration Measurement The first speaker on the panel was Jules Jenkins (Vibration Measurement Engineers) who described the latest developments with respect to the application of vibration measurement to quarry blasting and the equipment used for this purpose. He stated that the average quarry operator thinks he has no vibration problem and that a seismograph is a gadget to be used only in an emergency. This is far from the case, as there is now available invaluable data in the form of over 2,000 tests which have been made in quarries.

The seismograph, said Mr. Jenkins, has become a tool and an important one. The millisecond delay system of blasting was, he said, an important step forward both in the efficiency of blasting and the reduction of vibration from blasts. The seismograph was originally used primarily to determine the amount of vibration from blasts; but from the test results accumulated, it has become apparent that it has still another important use in determining the most efficient manner of explosives use for individual quarries.

Vibration beyond the point of turbulence, Mr. Jenkins declared, is largely wasted and costs the producer money. Seismograph records show that when a shot is properly controlled, there is a dip in the vibration curve which means, for an example, that in a certain quarry a 2,600-lb. shot can be made with about the same amount of vibration created by the 1,200-lb. shots being used. Many producers, he said, can make much larger and more economical shots than they are now making with actually less vibration. In one quarry, he stated, as a result of seismograph tests the spacing of the holes was increased so that only one-third the former number of drill holes were required; and with the same explosives ratio, the breakage was so much improved that only an average of 5 secondary shots was necessary per week, as compared to an average of 170 formerly. His engineers, said Mr. Jenkins, can now suggest spacings of holes and sizes of shots for more efficient and economical blasting, coming closer to theoretical perfection than ever before and without increasing the amount of vibration beyond the safe point for any quarry.

Drop Balling The use of drop balls for secondary breakage and other uses in quarries was discussed by H. A. White (Osgood Company, Marion, O). He said that a 1½-cu. yd. machine is considered about ideal for use with a drop ball, that it should have a 60-ft. boom, and should be rubber-mounted if it must be moved around much, which is the case in most quarries. The use of an independent boom hoist is advised, as are also independent travel and the use of non-rotating rope. He recommended the use of a 6,000- to 7,000-lb. forged steel drop ball with this equipment. Such a machine, he said, can also be used for much other work with or without the drop ball, such as scaling quarry faces, erection, stockpiling, reclaiming, etc. The rubber-tired mounting, he said, is not only better for traveling, but it also absorbs much of the shock of the drop ball. He also recommended the use of a rubber tire between the line and the ball in order to absorb shock and get longer life from the rope.

In the discussion which followed it developed that six to eight weeks is good life for wire rope used for this purpose. One producer said he saved much time and cable by using a coil spring and swivel in place of a tire and emphasized that skill on the part of the operator is the most important requirement. In answer to a question, Mr. White said that a small operator who cannot afford to use such a large crane for this purpose can get good results with a smaller crane and ball, provided that he uses a boom long enough to give an adequate impact. In very small equipment such as the ½-cu.

yd. machine, he said, there is always danger of overloading and tipping. One producer using a ¾-cu. yd. shovel and a 1-ton pear-shaped ball said that he got good results but had to drop the ball several times for big rocks.

Shaped Charges The Plurajet cavity blasting unit or shaped charge developed for secondary blasting use was described by John Miller (Shaped Charge Explosive Manufacturers, Inc., Martinsburg, W. Va.). He first briefly reviewed the history of this revolutionary unit, which had its start in the discovery of the Monroe principle in 1888 but which was not put to effective use until World War II. Detailed information on the development of the present unit has been published several times in these pages, but Mr. Miller also described the recent improvements which have made this charge more efficient, economical, and safe. It is now made in five sizes, two for trimming purposes or for small rocks, which have a thin metal base and cardboard top, and three for large boulders up to 30 tons, which are made entirely of plastic.

These units, he said, can be placed on a boulder or hung from its side and can be detonated by electric or fuse caps or with Primacord, instant or delay. According to Mr. Miller, these shots do not scatter the rock; and it is possible to stand within 50 feet as the rock is broken and laid down. This method he said is also an advantage, as it eliminates the necessity of cleaning up the quarry floor after a blast. It makes no more noise than a dobe shot and little more than a blockhole shot of equal size, said Mr. Miller. Several producers present told of the excellent results they have had with these charges, one of them on a standstone which is very hard and is expensive to drill. Mr. Miller also emphasized the fact that these charges will work well on most rocks but that on rocks which will not resist force, such as talc, other methods might be better.

Agstone Spreaders C. L. Rosselot (Even Spread Company, Owensville, O.) described the agstone spreader made by his company and the attachments which can be used with it. He pointed out that a spreader, in order to be satisfactory, must be adjustable for different rates of application.

H. A. Wendler (Highway Equipment Co., Cedar Rapids, Ia.) described the spreader made by his company which can also be used for spreading fertilizer or marl. Special attachments, he said, also make this machine suitable for seal coating, ice control, etc.

Pulverizing A. T. Glenn (Sturtevant Mill Co., Boston, Mass.) described the use of a ring roll mill in closed circuit with a vibrating screen for grinding plus 20-mesh material, and with a mechanical separator for grinding minus 20-mesh. In the latter case, he said, the separator can also be used for making asphalt filler and other fine products. He urged producers not to select equipment which grinds too fine as this is an unnecessary expense.

C. A. Mayer (Bradley Pulverizer Co., Allentown, Pa.) described the ring and roll mill with an internal screen which is made by his company in two sizes. In describing its application he said that one producer grinds to the percentage he wants through 100-mesh. This leaves a little excess on the 20-mesh screen, which is returned to the mill.

Belt Conveyors John R. Lewis, (Quaker Rubber Corp., Philadelphia, Pa.) gave a brief discussion of the importance of belt conveyors in the production of agstone and then introduced W. H. VanBuren, who is in charge of belt engineering and development for the company. He described the various types of conveyor belts now available for different applications. Those usable for handling agstone, he said, come in three grades. The cheapest grade is suitable only for handling packages and light materials. The middle grade is suitable for handling coal, limestone, etc. The speaker recommended that the producer be sure the carcass is mildew-proof, as the rubber will absorb water. The third and highest grade of belt is made with a higher crude rubber content and is used for main conveyors and other heavy duty.

In order to get maximum performance and life from conveyor belts, Mr. VanBuren urged that producers assign one man to belt inspection, maintenance, lubrication, etc. He should regularly check for wear, cuts, proper tension, misalignment and the other numerous things which can seriously decrease the life of a belt if not caught in time. He urged producers also to follow belt companies' advice in installing and loading belts and to use standard types and sizes.

Pennsylvania Stone Producers

(*From page 77*)

forcing steel; 61,895 tons of structural steel; 50,894,519 gallons of bituminous material; and 10,553,666 tons of coarse aggregates (all sizes). These estimated requirements for 1952 equal the 1951 purchases in most cases.

Mr. Buckius pointed out that the lack of available structural steel was greatly hampering the bridge construction program, and that the Defense Materials Order limiting highway construction to a two-lane pavement and restricting the construction of four-lane pavements was unreasonable.

The next speaker, W. H. Herman, chief research engineer, of Department of Highways, said: "We, in Pennsylvania, are very fortunate in having no less than 350 sources from which aggregates for highway work can be produced . . . You will recall that about two years ago, a procedure was set up which required that the constructor or the material producer be responsible for the design of his bituminous concrete pavement or the material which goes into the pavement. I believe that we have accomplished more in the quality of bituminous concrete since this requirement went into effect two years ago, than we had accomplished in the previous ten years."

The Honorable Richard N. Simpson, a senior Congressman with 20 years' service to the Pennsylvania voters, gave a brief report on percentage depletion as it applies to the crushed stone and allied industries.

William Hargadine Jr., regional director, Wage & Hour Division, U. S. Department of Labor, discussed briefly wage and hour regulations Number 5, 6 and 8. He pointed out that every employer should have a copy of these in his file, and that no wage or salary increases should be considered without the full knowledge of the requirements which cover the particular type of proposed wage increase.

Mr. Hargadine explained that General Wage Regulation No. 5 covers wage adjustments under the merit or length-of-service plan. General Wage Regulation No. 6 covers the 10 percent increase in wages to correct inequities arising because of disparities between increases in wages and salaries and the increase in cost of living since January 15, 1950. General Wage Regulation No. 8 covers the cost of living increase, even though it may exceed the 10 percent allowed in Regulation No. 6.

WASHINGTON NEWS LETTER

S. HERBERT UNTERBERGER

The Steel Case

THE knottiest domestic problem to hit Washington in some time is the steel case. Leaders of the United Steelworkers of America are demanding substantial increases in wages and employee benefits. This would result in a total addition to labor cost which has been variously estimated as amounting to anywhere from 35 to 65 cents an hour.

The steel case raises the kind of broad economic issues in which every businessman and every citizen has a stake.

The Main Issue

Regardless of how it is put, the principal issue which the government is being called upon to decide is how the economic gains from our expanding economy are to be distributed.

Since the end of World War II industry in the United States has been producing an increasing quantity of goods. During that period employees, through their labor unions, have been vigorously pressing their claim for a substantial share of that increased output. They have been successful in securing round after round of wage increases.

At the same time, other people who also have a legitimate claim to a share in the increased output have also been putting forth their claims. The dividends paid to stockholders, for example, have been increasing at a rapid rate.

Moreover, a large part of the increased output has gone to modernizing and expanding our capital equipment. Many businesses have retained a substantial portion of earnings to rebuild and expand their plants.

Between the end of World War II and the outbreak of the Korean conflict the advantages gained by a particular group often turned out to be more apparent than real. A wage increase, a dividend increase, or funds laid aside for modernization or expansion often ended up buying less than was expected because prices had risen. Nevertheless, the output of the economic system was divided among the various claimants in a more or less peaceful manner.

With the re-establishment of a war economy, the Federal Government was again put in the position where it had to decide how the output of the economy was to be distributed.

Price controls were set up to make sure that the sellers of goods did not get too great a share; wage and salary controls were established to make sure that employees did not get too large a share; and materials controls were drawn up to prevent the producers of less essential products from getting too large a share. Up until the steel case, however, the government was never really put on the spot to make the complete determination regarding the distribution of the output.

The steel industry has been expanding rapidly. Since the Korean conflict it has received government encouragement in the form of certificates of necessity permitting accelerated amortization on much of their expanded facilities. The result is that the industry has not only been making more steel but it has also been making more money. It has raised dividends; it has used a good share of its profits to finance its modernization and expansion; it has increased wages as recently as December, 1950.

But now the steelworkers' union is demanding a far larger share of the benefits from increased and increasing output. The companies are refusing to grant this out of their current income but appear to be willing to do so if they could raise their income by raising steel prices. The government, which holds a measure of control over all the forces at work, must make the final decision. The government's job is especially difficult. One kind of wrong decision might call forth a strike which would cut off the supply of steel in a period in the world's history where that could be an international disaster. Another kind of wrong decision could permanently reduce the output of steel by slowing down or stopping the expansion of steelmaking facilities. This could be equally disastrous in a situation where national security appears to demand an increasing amount of steel for an indefinite period in the future.

Many Questions to be Answered

To arrive at a workable solution government officials will have to consider a wide variety of fundamental questions. Unfortunately, precise answers to many of these questions are not available. The complexity of the problem may be judged from the following questions, which constitute only a partial list.

1. How much has steel output increased since the end of World War II; since Korea?
2. How much of this increased output resulted from improved and expanded facilities?
3. How much did the government contribute to making these increased facilities available?
4. How much did the employers contribute to this increased output?
5. How much have steel profits increased in recent years?
6. How high a profit rate is required to keep the steel industry a healthy, going enterprise?
7. Has the steel industry distributed its profits wisely?
8. Has the steel industry retained too high a proportion of its earnings?
9. Has the steel industry paid out too much in dividends?
10. Are the employees entitled to a wage increase to keep up with the cost of living?
11. If so, from what date should increases in the cost of living be measured?
12. Are the employees entitled to further wage increases to keep up with increased output?
13. If so, how should that be measured?
14. How will a wage increase now affect the defense program?
15. What effect will a wage increase have on the government's tax income?

In Washington many people are asking whether appointed government officials should be required to make such vital decisions. The most frequent answer is: "If they don't make them, who will?" The worst thing that could happen these days is a complete deadlock.

The Government's Stake

In addition to its interest in seeing to it that the defense program does not languish, the government has a large stake in this case because its outcome may determine the size of its tax income in 1952. The Union has argued quite convincingly that all or most of its requested wage increase could be paid out of the companies' "excess profits."

If these excess profits were transferred from the companies to the employees, the government would lose a tremendous amount of taxes. On excess profits it would receive in

(*Continued on page* 100)

they're
custom-built
to fit the job!

Work boats, pleasure craft

Drilling rigs, centrifugal pumps, generator sets

Earthmovers, logging yarders and loaders

Buses and highway trucks

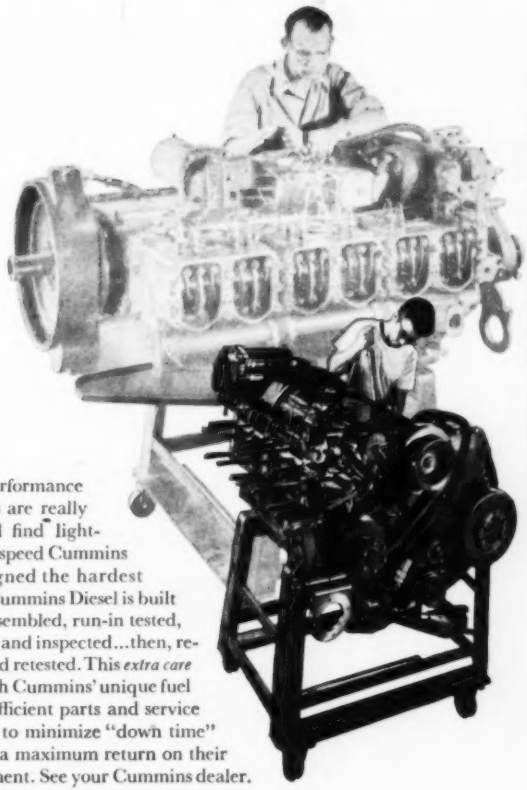
Off-highway trucks, crawler tractors

Shovels, cranes, industrial locomotives and switchers

Lightweight, high-speed Diesels (50-550 hp) for these and many other uses

Cummins® Diesels
do so many jobs so much better

they're
BUILT NOT ONCE BUT TWICE



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Aggregates for Big Dam Supplied At Site by 400-T.P.H. Plant

By H. F. UTLEY

ON THE SPOT

CONSTRUCTION is gaining momentum at Bridgeport, Wash., on Chief Joseph Dam, a major development on the Columbia River 51 miles downstream from Grand Coulee Dam. The project, under the direction of the Seattle District, Corps of Engineers, U. S. Army, will include the second-largest power plant in the world.

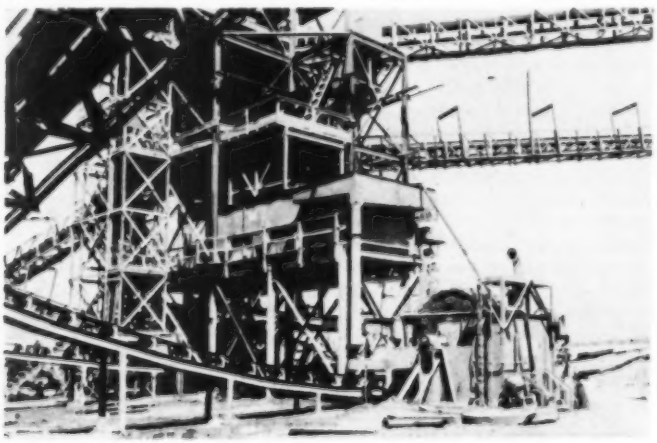
The dam, 220 ft. high, will have 922 lineal ft. of spillway and 1,338 ft. of abutment sections. The reservoir created will back up all the way to the tail-race at Grand Coulee. Dam, intake-canal structures, and power plant will require an estimated 1,700,000 cu. yd. of concrete.

Concrete aggregates are being supplied by a 400-t.p.h. plant designed and manufactured by the Conveyor Company, Los Angeles, for Chief Joseph Builders, the contractor. Joint venturers in this second-stage construction contract are the L. E. Dixon Company, San Gabriel, Calif. (sponsor); Arundel Corporation, Baltimore; Hunkin-Conkey Construction Company, Cleveland; and American Pipe & Construction Company, Los Angeles.

The sand-and-gravel deposit selected by Army Engineers as the source of aggregate supply is located about 3½ miles downstream from the dam on the north bank of the Columbia. The pit was opened simultaneously with the completion of the erection of the aggregate plant in July, 1951. Test holes in the deposit to determine its extent and the ratio of sand to gravel have indicated that excavation will be undertaken to a depth of about 50 ft. to insure an even feed in the proper balance of sizes, since there is a wide variation in the occurrence of sand.

The pit has been mapped roughly as a T-shaped area containing over 2,000,000 tons of material, as shown in the accompanying sketch. The deposit will be worked and developed by the portable hopper- pendulum conveyor-crusher car method used so successfully by several commercial plants in the Los Angeles area.

Excavating is done by a Bucyrus-Erie 120B 5-cu. yd. electric shovel on crawlers, which loads an 8-cu. yd. hopper straddling the tail-pulley of a 48-in. by 120-ft. pendulum conveyor running to the primary crusher in the pit. Although excavating had just begun near the entry area when the plant was visited, the plan is to work the shovel around the hopper until the hopper is out of reach, the shovel then picking up the hopper and end of the pendulum con-



The 32-compartment 9- by 37-ft. fine sand classifier, with vacuum dewatering wheel (right) at ground level.

An overall view of the main plant operated by the Chief Joseph Builders near Bridgeport, Wash. Finished coarse aggregates are reclaimed for truck delivery by tunnel conveyors (right center).

Four concerns form an organization to turn out material for 1,700,000 cubic yards of concrete needed to build Chief Joseph Dam on the Columbia River.

veyor, swinging it to a new station. This will progress until the shovel and hopper have moved through a 180-degree arc around the crusher. As excavating progresses, a 42-in. sectionalized field conveyor will carry from the crusher to the transfer point on the main conveyor leading out of the pit to the plant; eventually the field conveyor will reach an ultimate length of 400 ft.

The Pioneer 30- by 42-in. jaw crusher will be mounted on a rail car with a universal-joint connection to the pendulum conveyor, allowing free movement in any direction. Pit-run will come off the pendulum conveyor at an estimated rate of 850 to 1,000 t.p.h., a 12-in. rail grizzly ahead of the crusher rejecting the boulders directly into the crusher, set to make a maximum of 3- to 6-in. material. Grizzly throughs and crusher product then go *via* field conveyor and the 42-in. inclined conveyor to a primary scalping station on the rim of the pit.

At the primary station, an extra-heavy-duty 6- by 12-ft. single-deck scalping screen with 7-in. square perforated openings in ¾-in. steel plate passes the minus 6-in. raw material to a 36-in. conveyor which builds the raw surge pile. This stockpile of plant feed will have 9,400 live-storage capacity — enough to supply the washing-and-sizing plant for about 2½ days. Plus 6-in. material from the scalping screen passes to an intermediate surge bin from which a short belt-feeder puts it through a Lippmann 24- by 36-in. jaw crusher, jaw plates positioned to obtain the maximum of plus 3-in. crushed gravel. Product of the Lippmann machine is carried by two 24-in. reversed conveyors (to gain altitude) to a 4- by 10-ft. double-deck screen which rejects any 6-in. oversize on the upper deck for return to the Lippmann crusher. The minus 6-in. plus 1½-in. retained on the lower deck goes to the plant-feed surge pile previously mentioned, while the minus 1½-in. material is conveyed to a waste stockpile. Should it be needed, some of this waste in sizes under ½-in. may later on be screened out separately for rod-mill feed.

Capacities in the primary circuits just described are considerably greater than final processing capacity to accommodate the irregular gradation in the pit, the time required to extend pit conveyors, move the hopper, etc. The lack of uniformity in gradation was apparent early when a series of test holes revealed these extremes—86 percent gravel to 14 of sand at one point; 16 percent gravel and 84 percent sand at another. In between, however, pretty good gradation is encountered, and very little trouble is anticipated in meeting the specifications. What the deposit lacks in extreme fines will be made up by manufacturing sand.

Feed to the main plant is withdrawn by a 30-in. conveyor operating in a concrete and corrugated-steel tunnel beneath the surge pile, a Conveyco 3- by 8-ft. reciprocating feeder driven by a variable-speed, remote-controlled motor feeding to the belt. This conveyor terminates at the top of the sizing-screen struc-

Above, right: Scene in the pit shortly after the start of operations. The hopper feeds the short belt running to the primary crusher in the pit.

Right: The concrete plant. Cement silos are at the left; ducts carrying refrigerated air for cooling aggregates are also shown.

ture and delivers at the rate of about 450 t.p.h. A splitter divides the material to a pair of identical 4- by 12-ft. 2-deck screens with spray pipes on both decks. Rejects are finished product, the top decks making 6- to 3-in. gravel, lower decks the 3- to 1½-in. Each is carried by conveyor and lowered by rock ladder into separate finished storage piles. Throughs drop to a pair of 5- by 14-ft. 2-deck washing-and-sizing screens which make two finished products, building up the 1½- to ¾-in. and the ¾- to No. 4-mesh stockpiles.

Undersize from the last-mentioned screens, along with the accumulated wash water, passes by gravity to two 5- by 14-ft. double-deck screens with No. 8 and No. 16 rectangular openings and equipped with spray nozzles. Oversize from both decks passes through chutes with controllable gates to regulate the ratio of the two sizes in the intermediate stockpile of finished coarse (minus No. 4 plus No. 16) sand. Excess coarse sand is conveyed to a rod-mill surge pile by conveyor.

A shortage of the required fines in the minus No. 16-mesh range is made up by grinding coarser natural material which is stored in the surge stockpile (1,200 tons live storage) just referred to. Withdrawn by an 18-in. tunnel belt conveyor with variable speed control at the desired rate, the material to be ground, along with fresh grinding water, enters both ends of a Marcy 6- by 12-ft. rod-mill with center peripheral discharge. A mechanical splitter assures equal feed to both ends of the mill. Water is added to the rod-mill pulp discharge to attain proper density before it is raised by a Wemco 6-in. sand pump to a 5- by 14-ft. double-deck screen equipped with No. 8 and No. 16-mesh spray-piped decks. The coarser cloth in this instance merely serves as a cover deck to assure more accurate sizing on the 16-mesh deck, all plus 16-mesh being returned in circuit to the rod-mill, or it may be wasted if desired. If wasted, it is ponded separately for recovery later should it ever be needed. The minus 16-mesh material from the mill joins the minus 16-mesh natural sand for classification, blending, and dewatering.

The control of sizes is accomplished in a new type Conveyco 32-compartment hydraulic classifying tank, 36 ft. 10 in. long and 9 ft. wide. This tank has four longitudinal compartments, each of which is divided into eight smaller compartments, or pockets. Splitting chutes just ahead of the sizer proportion the feed into the four longitudinal sections. Each of the 32 settling compartments is fitted with two bottom valves to allow either the saving or wasting of that size as required. The vertical dividers between the compartments are of decreasing height to assure further control of the settling rate at a given velocity through the tank. By this means, eight separate and distinct gradations can be made in the length of the tank. By regulating the valves to "waste" or "save" launders beneath the tank, control of proportions is achieved.

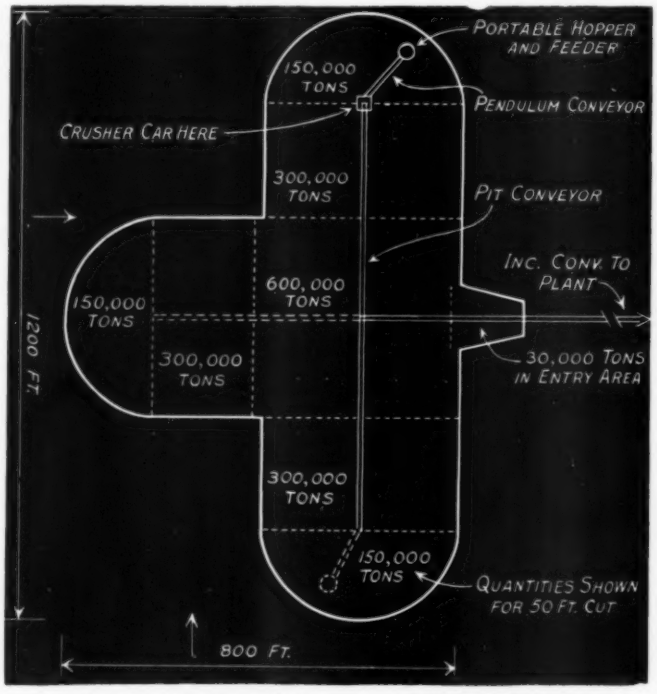
Each of the lower discharge valves is made up of a rubber conical seat and a rubber ball fastened to a control rod extending up above the top of the tank. These valves always operate either fully open or fully closed, never to control volume. Below the ball valve, through the use of standard pipe fittings, is an orifice of the size required to pass all of the settled sand and water in that compartment.

A top overflow lip about 25 ft. long and around three sides at the discharge end of the tank assures an extremely low velocity at the overflow, making possible the maximum saving of fines in the desired 100- to 200-mesh range. The tank is also equipped with bleeder valves so that water may be withdrawn from all but the first set of compartments to permit further control of this velocity.

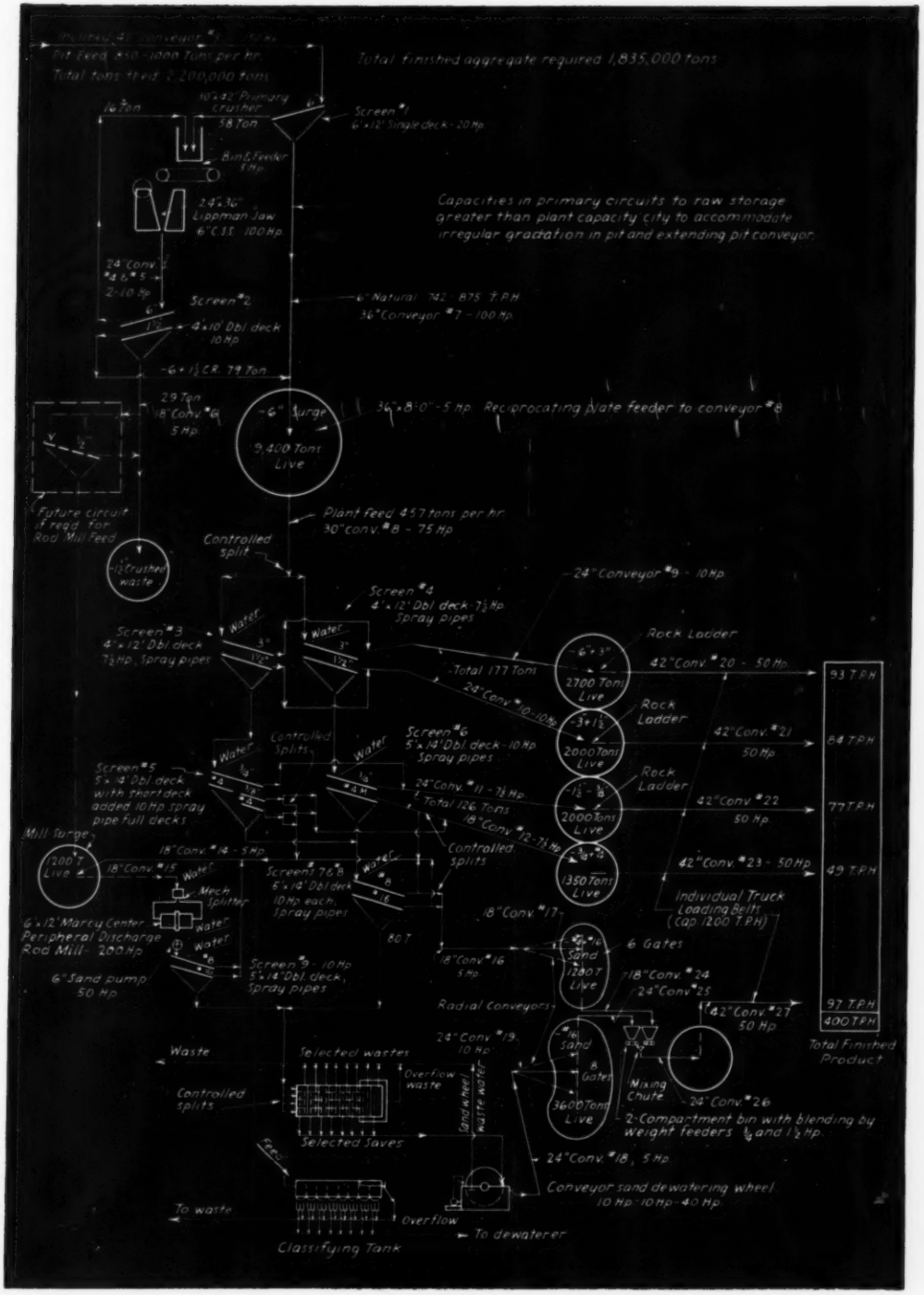
Leaving the tank, the sand passes to a Conveyco vacuum-dewatering wheel for the removal of migratory water and thence to stock pile. Radial conveyors are used to build up both sand stock piles of sufficient length to obtain the required drainage. Tunnel-conveyors recover the fine and coarse sands separately, carrying to a blending-bin structure where a pair of Merrick Feedoweight conveyor scales proportion the sands to specifications. A 24-in. stacker conveyor then builds up the finished blended-sand stockpile. The usual rigid specifications for sand prevail on this, as on other Corps of Engineers projects, the fineness-modulus average being 2.52, with a minimum of 2.25 and a maximum F.M. of 2.75. Nine out of 10 test samples of the blended sand as delivered to the concrete plant cannot vary more than .10 from the average F.M. of all samples tested during the preceding 30-day period.

In addition to the finished sand in stockpile, there are the four piles of finished coarse aggregate. Live storage of the five piles is as follows:

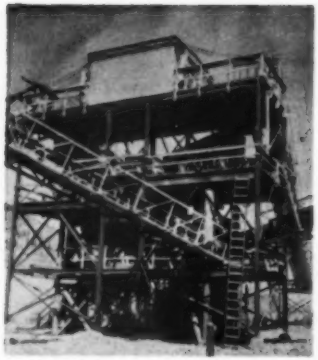
—6 in. +3 in. . . . . 2,700 tons
—3 in. +1½ in. . . . . 2,000 tons



Flow sheet of the pit and plant operations of Chief Joseph Builders.

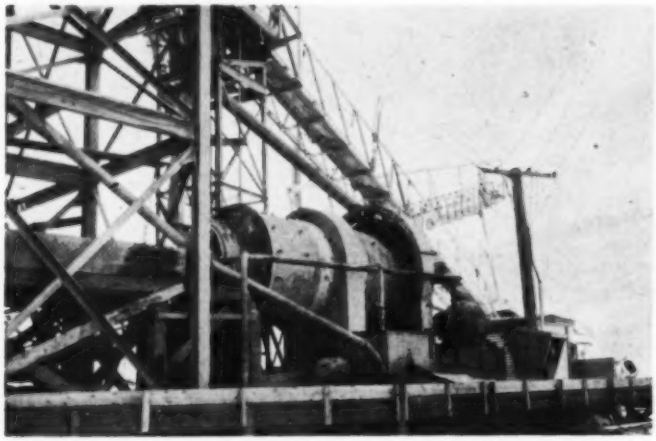


Flow sheet of the main crushing and screening plant operations.



The primary screening and crushing station, where pit run is reduced to minus 6 in. to supply the plant surge plant.

Bulk cement is received and stored at railroad, 10 miles west of the dam site.



This 6- by 12-ft. center peripheral discharge rod-mill grinds some of the coarser sand to make up a deficiency of fines in the pit.

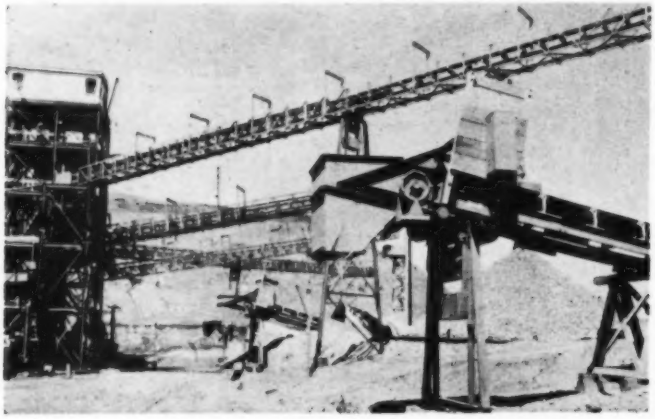
—1½ in. +¾ in.....2,000 tons
—¾ in. +No. 4.....1,350 tons
—No. 4 blended sand...3,600 tons

Each of the five piles is served by a separate 42-in. carry-away belt which loads the trucks for delivery to the concrete-mixing plant.

Cement (Type II) is received at railroad about 10 miles west and is transported by truck-trailer to the concrete plant. Trucking of both the aggregates and the cement has been subcontracted, G.M.C. front ends and Fruehauf trailers being used in the fleet.

Coarse aggregates are rescreened above ahove the 450-ton bins of the C. S. Johnson-Koehring mixer plant at the construction site. Specifications require that the placing temperature of the concrete be between 40 and 50 deg. F. and a Hightower forced cold-blast system is used to chill the coarse aggregates, while Christiansen coolers lower the ce-

(*Continued on page* 100)



Finished aggregates are loaded into trucks by the conveyors at the right of the roadway. The main washing and sizing plant is at the left.

The washing and screening plant, showing the control house at the top.

Columbia Gypsum Products Uses Kettle of Unusual Design

• This view shows a part of the Columbia Gypsum Products, Inc., plant building near Spokane, Wash., and some of the stock of partition tile.

By HARRY F. UTLEY

another ON THE SPOT report

EXCEPT for the manufacture of board, production of a complete line of gypsum products has now been attained by Columbia Gypsum Products, Inc., at its new plant near Spokane, Wash. The new kettle was fired for the first time early in March, 1951, and the concern is now supplying plaster, calcined gypsum, and gypsum tile, in addition to the dried and ground agricultural gypsum which had been the only product previously marketed. (See PIT AND QUARRY, October, 1950, p. 90.) It is the only gypsum-processing plant in operation in the state of Washington and it serves the entire Pacific Northwest.

The company owns or controls nearly 4,000 acres of high-grade deposits in British Columbia and the rock is shipped by rail after primary crushing north of the border. At the Spokane plant the cars discharge to a track hopper alongside the 60- by 255-ft. plant structure. From the hopper, the minus 6-in. rock is first crushed in an Ehrsam 24- by 34-in. jaw-crusher, ground in a Cedarapids 3033 hammermill, and elevated to a steel storage tank. This tank feeds a Raymond 5448 low-side whizzer roller-mill with flash-drying system and air-separation. The dry, finely ground (98 percent through 100-mesh) "land plaster" product of the mill may be elevated to bins above a 3-tube St. Regis packer, to be marketed as "Greenacres" agricultural gypsum, or to the 100-ton kettle-feed bin.

The gypsum is calcined in a rather unusual type of kettle designed for the company by Wolf G. Bauer, Seattle consulting engineer and well-known contributing editor to PIT AND QUARRY. The Columbia kettle employs the minimum of refractory linings, is stainless-steel clad on the firing side, and has an inverted-cone bottom in contrast to the slightly-dished bottom usually found in use in the industry. The result is that desirable lower bottom temperatures are attained during calcination (1,600 deg. F. maximum instead of the 3,000 deg. often registered), the heat being distributed uniformly over a very large surface area through the kettle to guard against over- and under-cooking. A 13-ton kettle load of feed can be charged in 3 minutes' time from the bin, aided by aeration and a Syntron vibratory feeder. The feed cut-off gate is air-ram operated and controlled from the elevated operating platform. The kettle measures 10 ft. in diameter and 12 ft. high. Calcination is carried out in 2-hr. cycles, 13 tons or raw feed yielding about 11 tons of calcined product (stucco), the management reports. A new type of automatic oil-fired horizontal furnace is used to fire the kettle. It is equipped with a Hauck air-atomizing oil burner.

The entire burner-kettle installation is pushbutton controlled and completely instrumented. A Hays flow-meter regulates the stream velocity of the hot gases through the kettle flues and a Wheelco Capacilog measures, records, and controls the temperatures. These are sensed by the thermo-couples at the neck, top, bottom, and at two points within the kettle itself, as well as the exhaust ahead of the dust-collector. Should the temperature of the kettle bottom rise above 1,600 deg. F., a warning signal sounds and the oil supply to the furnace burner cuts off automatically.

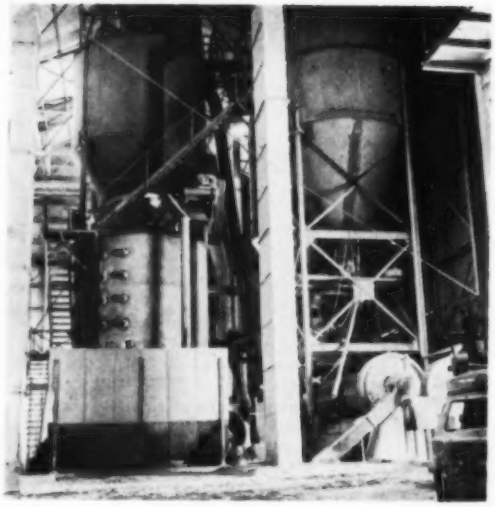
Exhaust-gas temperatures are only around 400 deg. F., and this waste heat is fully utilized for drying in the Raymond mill previously mentioned. The jacketed cyclone-type dust collector is heated to retain moisture above dew-point. The Columbia management is highly pleased with the calcining installation and reports that the high quality of the stucco is unusually uniform, batch after batch.

After dumping to the hot pit, the calcined gypsum may be recovered and tube-milled, or conveyed by low-pressure air directly to the tile-forming tables.

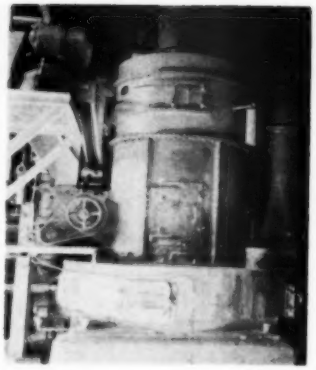
The 4- by 16-ft. tube-mill is charged with 11 tons of 1-, 1½-, and 2-in. steel balls and has a grinding capacity of 10 t.p.h. The tube-milled stucco is elevated to the plaster feed bins above an Ehrsam weigh-batcher and an Ehrsam 2-compartment 1,500-lb. batch mixer where the Yucatan sisal fibers and retarders are intermixed with the stucco to yield the various grades of commercial plasters. These are packed in 50- and 100-lb. paper valve bags by another 3-spout St. Regis packer. The 50-lb. packages are being well-received by the trade because of the ease in handling on the job.

Stucco for the manufacture of gypsum tile is stored in a 25-ton bin and fed by screw to a pot-mixer where water and sawdust are added. The tile forms are filled and struck off manually, and about 3,000 sq. ft. of wall area is produced daily. Most of the tile output consists of 30- by 12-in. non-load-bearing partition tile in 3- and 4-in. thickness. Two new multi-storied office build-

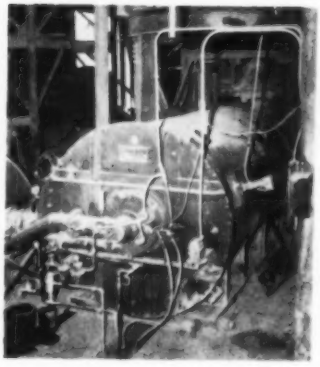
(*Continued on page* 107)



• Left: A general view inside the building. At the left is the kettle with overhead feed bin. The stucco feed bin is above the tube-mill at the right.



• Right: The roller mill which grinds, dries, and classifies the raw gypsum.

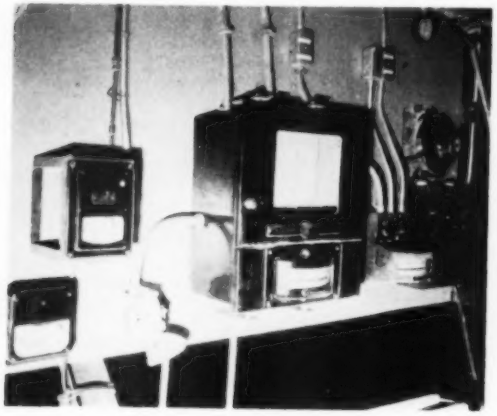


• Left: The burner end of the horizontal furnace which fires the kettle. All controls are automatic.

• Right: The plaster feed bins above the batcher, mixer, and packer.

• Below, left: The instrument panel and control board on the kettle operating platform.

• Below, right: Stucco for plaster is milled in this 4- by 16-ft. tube-mill.



Dubuque Stone Products Company's New Plant

100-ton-per-hour facilities adjacent to new quarry utilize 5,000-ton surge pile in making wide range of sizes.

another ON THE SPOT report

WHEN the Dubuque Stone Products Company of Dubuque, Ia., began preliminary work on a new stone deposit several years ago, the original plan of attack called for the development of the property

By WILLIAM M. AVERY

as a riprap and primary crushing plant to supplement material reserves at the firm's main location on the north edge of the city. The new property was also an anchor to windward against the ever-present possibility that the city fathers might refuse to sell the company additional stone land adjacent to the quarry from which it had operated for more than a quarter of a century.

Dubuque Stone Products acquired the original quarry property from the Eagle Point Lime Works, whose principal business was the burning of lump lime and the production of riprap stone used in building wing dams in the Mississippi River and for flood control. When the present owners took over, the lime burning operation was abandoned, and a 200-t.p.h. crushed stone plant was built.

Fortunately both the initial development plan and the new site itself were well adapted to the needs which arose when it actually became apparent that the older property could not be extended. Throughout the summer of 1949 nothing but riprap was produced at the new location, but by April of the following year complete facilities were in operation for crushing, screening, stockpiling, and loading out all sizes of crushed limestone. The new plant has a capacity of about 100 t.p.h. of sized materials, in addition to agricultural limestone, which accounts for about 15 percent of total production.

The new property consists of about 100 acres of stone deposit in a 154-acre tract on the west bank of the Mississippi River about three miles north of the city of Dubuque. Most of the stone is a dense, brownish dolomitic material which is excellent for ballast, concrete aggregate, and agricultural limestone. Even the top stone is extremely hard, and all the material is solid and characterized by rather thick ledges. The face, which is at present about 100 ft. high by 800 ft. long, is located on the east side of a high bluff overlooking the Mississippi River. As the work progresses, it is expected that the height of the working face will increase to the maximum of about 150 ft., and that the length will also increase considerably.

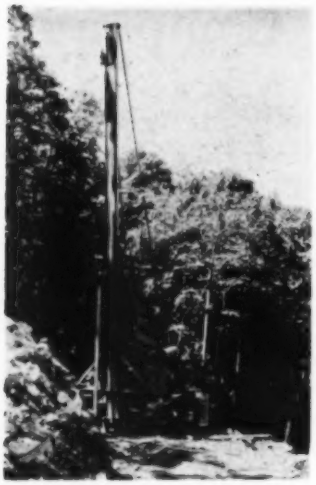
About 12 ft. above the present quarry floor the character of the stone changes abruptly, the material below that level consisting of an extremely hard, blue stone which closely resembles granite. Although this material makes an excellent fluxing stone, it is of such extreme hardness that only 1 ft. of blast hole can be drilled in the same time required for 15 ft. of hole in the upper strata. For this reason the present plan for developing the quarry calls for leaving a ledge of the harder material with the thought of working it separately at some future time.

Overburden on the deposit has an average depth of about 6 ft. and is removed with shovels, bulldozers, and trucks. Six-in. diameter blast holes are put down to a depth of 2 ft. below the quarry floor, this work being done with a Bucyrus-Erie 22-T well drill on contract. Generally at least ten holes are shot at a time, usually arranged in a double row with 12-ft. burden and 18-ft. spacing. Primary blasts are made on an average of twice monthly. The holes are loaded to within 14 ft. of the top with watertight cans of Du Pont Nitramon blasting agent which is detonated by means of Nitramon primer, electric blasting caps, Primacord, and a Du Pont blasting timer set for intervals of .015 second. Good fragmentation is the rule under most of the conditions encountered, and only about one-sixth of the total material brought down requires secondary drilling and blasting. Compressed air for secondary drilling is supplied by an Ingersoll-Rand two-stage air-cooled compressor. All primary blasts are supervised by a representative of the Du Pont company. Plurajet cavity blasting units are also used very successfully in secondary blasting.

• Paul M. Naumann is general manager and treasurer of Dubuque Stone Products.

Stone is loaded at the quarry face by means of a Manitowoc diesel-powered Speedshovel equipped with a 1¼-cu. yd. bucket, and a 1½-cu. yd. Marion electric shovel. Two Mack LF tandem trucks and one Euclid UD rear-dump truck make the 3/10 of a mile haul from the quarry to the primary crusher; each unit averaging about 80 12-ton loads in a 10-hour day. Although the quarry is so situated that a common roadway could have been used for hauling to the primary crusher and for access to the property, the company wisely built parallel but separate roads to avoid traffic bottlenecks.

The plant itself is located on river-bottom land, but adjacent high ground on the bluff side was used to good advantage in laying out the primary crusher and feeder, these units flanking an "L"-shaped concrete retaining wall which permits the quarry trucks to discharge from roadway level without a ramp. The 32- by 40-in. Cedarapids primary



• Six-in. diameter blast holes are put down to a depth of 2 ft. below the quarry floor with a well drill.

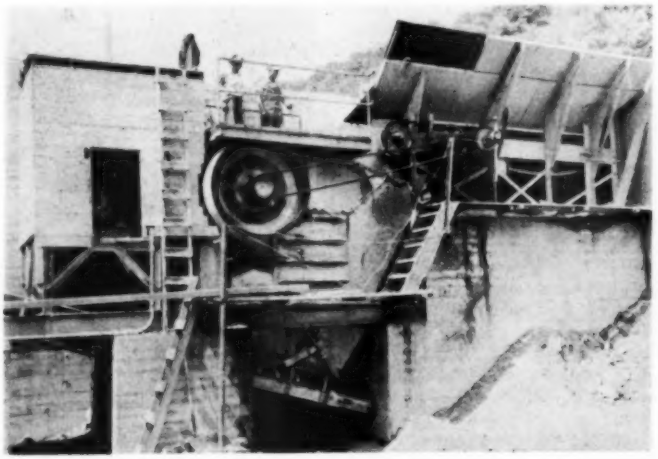
• Riprap loading operations at the new plant. One-man product is manufactured and loaded at the rate of a car an hour.

jaw crusher is fed by a 36-in. by 14-ft. apron feeder of the same make. All conveyors and bins in the subsequent processing circuit are also Cedarapids units. Each of the 15 conveyors in the plant is equipped with its individual drive motor and American Pulley speed reducer.

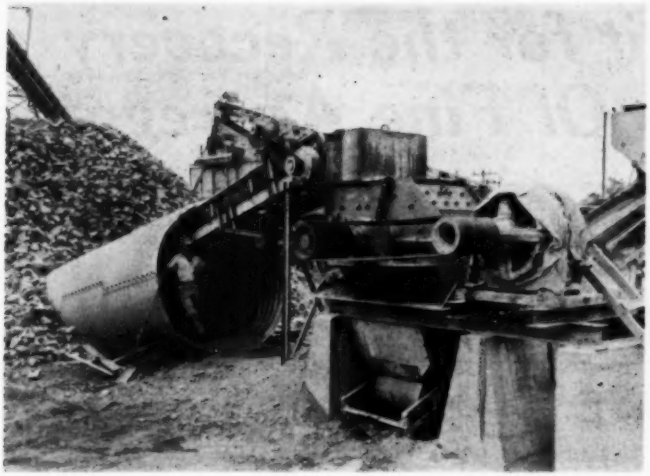
Material drops from the primary crusher onto a 36-in. by 91-ft. channel-frame open conveyor which discharges over a 5- by 10-ft. double-deck Tyler-Niagara riprap screen. The top deck has 6-in. openings and the screen is protected by skid bars spaced at 8-in. intervals. When the plant is producing riprap, plus 6-in. stone drops into a chute and is loaded into open-top cars on the adjacent railroad siding. Rejects from the 1-in. bottom deck are conveyed to a 5,000-cu. yd. surge pile, while the minus 1-in. material drops into a hopper below the screen and is separately conveyed to a stockpile for surfacing stone.

The surge pile is located over an 8-ft. diameter corrugated metal tunnel, and the stone is reclaimed by means of a 3- by 5-ft. plate feeder and a 30-in. wide channel-frame belt conveyor. The latter unit discharges directly into a Williams 4030 Super Slugger crusher. A 24-in. lattice-frame belt conveyor then takes the stone into a closed circuit consisting of a double-deck Tyler-Niagara screen and a Symons 3-ft. short head cone crusher.

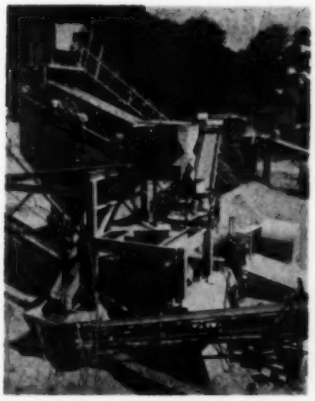
• Two 12-ton tandem trucks, loaded by a 1¼-cu. yd. diesel-powered shovel, shuttle between the quarry face and the primary crusher.



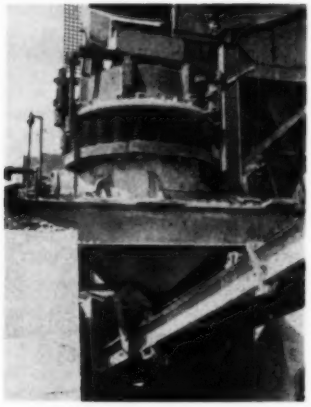
• The 32- by 40-in. primary jaw crusher is fed by a 36-in. by 14-ft. apron feeder.



• The secondary crushing and screening circuit is fed from the 5,000-cu. yd. surge pile at the left.



• A general view of the secondary crushing and screening circuit. The double-deck screen operates in closed circuit with a 3-ft. short head cone crusher.



• Left: A closeup of the short head cone crusher.

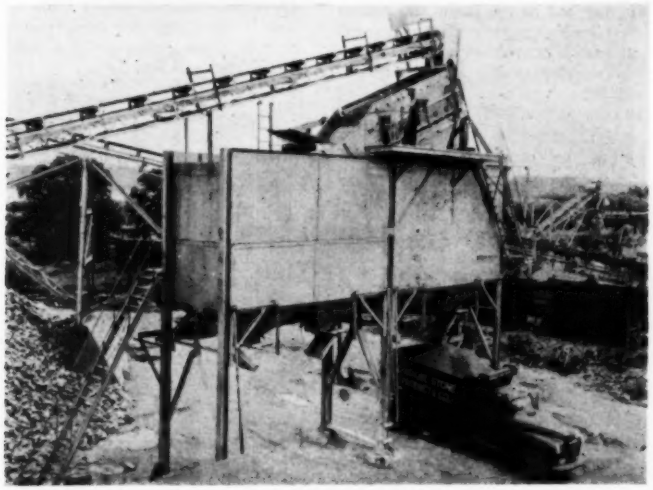
Minus ⅛-in. stone, which is marketed as agricultural limestone, drops from the screen onto a short inclined belt conveyor which discharges onto an open pile. From there the material is distributed for storage and drying by means of a Sauerman slackline scraper. A ¾-cu. yd. Thew shovel is used to load agstone from the storage pile into spreader trucks or rear-dump units.

Rejects from the top deck of the screen are chuted to the cone crusher, which operates in closed circuit with the screen, while the plus ⅛-in. products drops onto a 24-in. by 22-ft. inclined lattice-frame conveyor which delivers it to the sizing screen.

Final sizing is done with a triple-deck Tyler-Niagara screen mounted over four 30-ton steel bins which are used for loading trucks. An 18-in. belt conveyor at the side of the bins provides for blending any combination of four sizes of material for concrete aggregate, or for taking off one size at a time for stockpiling. Sized stone can be loaded into cars at the point where the conveyor system crosses the rail siding by means of a system of five belt conveyors. A considerable area has already been cleared and leveled to accommodate stockpiles, and additional space is being prepared for this purpose as time permits and equipment is available.

To date the output of the plant has averaged about 100 t.p.h. When the property is producing quarry-run stone, considerable quantities of which were shipped after last winter's serious floods, it is possible to load at the rate of five cars an hour. In this type of operation the quarry trucks usually dump directly into the cars from a ramp next to the rail siding. Most material of this type is used for shore protection work, and loadings have at times run as high as 50 cars per day. The product, consisting of any material which will pass through a 1½-cu. yd. bucket, is usually loaded into 30-cu. yd. air-dump cars which the

(*Continued on page* 107)



• Final sizing is done with a triple-deck screen mounted over four 30-ton steel bins. One size of stone, or any combination of four sizes, can be conveyed from the bins to the rail siding or to the stockpiling area.

A New Unit for the Recovery Of Fine Aggregates

By D. C. GILLESPIE
Sales Development Engineer
The Dorr Company, Stamford, Conn.

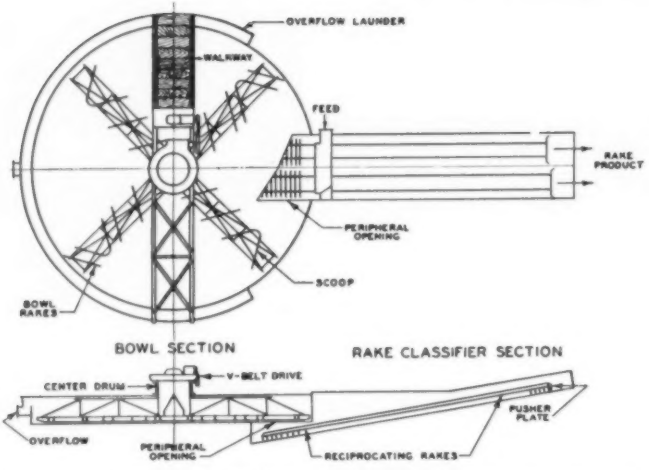


Fig. 1. General arrangement of the Dorrco Bowl Desiltor, showing component parts. In this case the feed enters the side of the unit.

another P&Q exclusive

MOST plants using water in the washing and screening of aggregates are faced with the problem of disposing of large volumes of wash water containing relatively small amounts of fine solids, usually sand and clay. In many cases the fine sand is sufficiently valuable, either in helping to meet concrete sand specifications or as builders sand, to justify the installation of a recovery system. Other factors, such as a critical shortage of water and/or the pollution of waterways, may indicate the desirability of not only recovering the fine sand but also clarifying the wash water. In this article we shall be concerned mainly with the solids recovery phase, although some reference to the clarification step will be made.

If the solids are found to be worth recapturing, the operator, in seeking the best recovery system for his particular plant, will consider the factors of (1) first cost, (2) operating and maintenance costs, (3) percent recovery, (4) cleanness of recovered material, and (5) space requirements.

Probably the most common solution to the problem has been the construction of impounding dams, where the solids are allowed to settle and the clarified effluent is either discharged into streams or pumped back to the plant for reuse.

From the standpoint of solids recovery, however, this system has several serious disadvantages. First of all, due to lack of control over detention time in the basin, the desired product is always contaminated with any clay or silt present in the wash water. Secondly, the dams require a large amount of space. Third, the settled material must first be dug out of the basin and placed on piles to dry before being loaded on trucks, a double handling operation which periodically ties up much-needed shovels and trucks at a point usually a considerable distance from the plant. Finally, the system cannot be operated succesfully in cold climates. In the face of such drawbacks it is not surprising to find that many plant operators have decided "the end does not justify the means" and daily accept the loss of tons of valuable recoverable fines.

Several plants in the aggregates field recently stopped their fine solids losses simply by installing a compact, mechanical unit which produces recovered sand that is not only classified and de-silted, but also sufficiently dry to be handled on a continuous conveyor or stacker. This machine, known as the Dorrco Bowl Desiltor,[1] is a low-cost modification of the Dorr bowl classifier. It has been specifically designed to recover fine solids from large quantities of water at negligible operating and maintenance costs. It is the purpose of this article to describe this new unit and to present operating data recently obtained from two installations now in successful operation in the industry.

The Bowl Desiltor consists of a comparatively shallow, flat-bottomed circular tank equipped with revolving rakes or plows which convey settled material outward to a peripheral opening in the tank bottom. There the material passes from the tank or bowl into the lower end of a conventional reciprocating rake-type classifier. (See Fig. 1)

The point of feed entrance de-

[1]Trademark of the Dorr Company.

Fig. 2. View of the fine agstone recovery system installed by G. & W. H. Corson, Inc., at Plymouth Meeting, Pa. The dryness of the Bowl Desiltor product is illustrated by the steep angle of repose of the storage pile.

pends on the volume of flow and the amount of coarse solids in the feed. For flows up to about 1,000 g.p.m. containing appreciable quantities of plus 50-mesh solids, feed enters the side of the bowl at a point directly above the peripheral opening, thus permitting the larger particles to settle directly into the rake compartment. Where larger flows containing little or no coarse material are involved, feed enters the center of the bowl and all of the settled solids are conveyed to the peripheral opening by the bowl rakes. In both cases the settled material is carried up the inclined slope of the classifier and discharged by the reciprocating rakes, considerable dewatering taking place in the process. The effluent is carried away by an overflow launder which extends around two-thirds of the bowl periphery (the portion away from the feed entrance to avoid short-circuiting of feed to the launder). Additional information is presented in Table I.

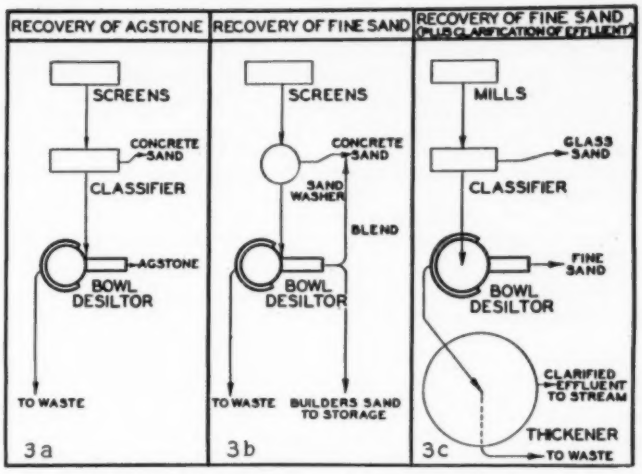


Fig. 3. Simplified flowsheets showing the use of the Bowl Desiltor in three different recovery plants.

Table I—Bowl Desiltor Characteristics

Data	Corson	McCeney	Cumberland	Pa. Plant
Size of unit	5'x30' 4"x26' dia.	6'x28' 4"x26' dia.	5'x30' 4"x26' dia.	6 x31' 8"x50' dia.
Bowl speed, r.p.m.	1.0	1.5	1.0	0.8
Rake speed, s.p.m.	9	12	5	12
Total installed horsepower	6	8	6	15
Feed entry into bowl	Side	Side	Side	Center

The outstanding feature of the Bowl Desiltor is its flexibility of design. This is achieved by joining the bowl and classifier on the periphery of the bowl instead of at the center, as is done in the bowl classifier. This design permits the coupling of very large-diameter bowls with comparatively small, light-duty classifiers, an impractical combination in the conventional bowl classifier.

Additional design flexibility is obtained through variation of (1) the bowl rake speed, (2) the reciprocating rake speed, and (3) the classifier slope, all of which make the unit adaptable to a fairly wide range of recovery problems.

Bowl rake speeds are generally around 0.5 to 1.5 revolutions per minute while the reciprocating rake speeds are in the range of 5 to 15 strokes per minute, depending on the tonnage handled.

The first fine solids recovery installation of this type was made by the G. & W. H. Corson Company of Plymouth Meeting, Pa., producers of lime and dolomitic limestone.[2] The problem at this plant was to recover fine agricultural limestone from wash water overflowing a 3-ft.-wide by 25-ft.-long drag classifier removing concrete sand. A 5-ft.-wide by 30-ft. 4-in.-long by 26-ft.-dia. Bowl Desiltor was installed, which, according to recent tests, is handling 450 g.p.m. of feed containing 6 to 7 percent solids, about 52 percent of which is plus 325-mesh. The rake product, delivered to a continuous stacker at 25 percent moisture, represents a 56 percent overall weight recovery and includes about 89 percent of the plus 325-mesh material. The simplicity of the Corson layout is clearly shown in Fig. 2 and Fig. 3a. Additional operating data are given in Table II.

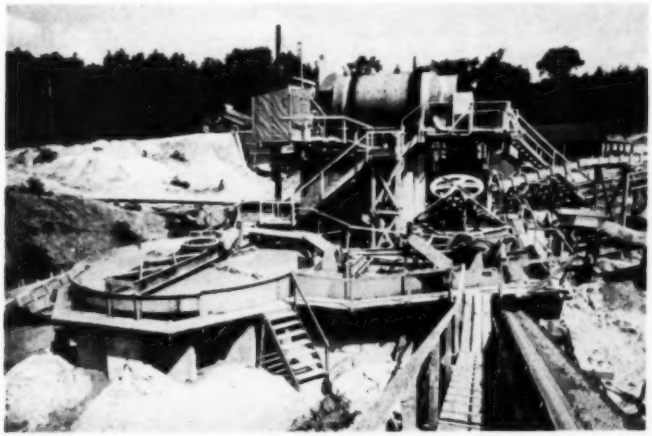


Fig. 4. A view of the fine sand recovery system installed at the sand and gravel plant of W. H. McCeney Jr. at Silver Springs, Md.

Table II—Bowl Desiltor Operating Data

Data	Corson	McCeney
Material handled	Limestone	Sand
Spec. gr., solids	2.6	2.7
Spec. gr., solution	1.0	1.0
Desired mesh of separation	325	200
Feed solids, t.p.h.	7-8	37-38
Feed flow, g.p.m.	450	850
% plus mesh of sep. in feed	52	44
% recovery of desired fraction	89	81
% moisture in rake product	25	27
% overall weight recovery	56	39

[2]See PIT AND QUARRY, page 111, May, 1951.

At the W. H. McCeney Jr. sand and gravel plant in Silver Springs, Md., due to the presence of large amounts of clay and a short supply of wash water, vitally needed fine sand (plus 200-mesh) was being carried away in the overflow from a 12-ft. 3-in.-dia. sand washer. A 6-ft.-wide by 28-ft. 4-in.-long by 26-ft.-dia. Bowl Desiltor is now receiving about 850 g.p.m. of feed containing 15 to 16 percent solids, about 44 percent of which is plus 200-mesh. The unit, in making an overall weight recovery of about 39 percent, is recovering 81 percent of the plus 200-mesh solids at a moisture content of 27 percent. These rake solids are then blended back into the concrete sand as required to meet specifications, the surplus going to storage for subsequent sale as builders sand. (Fig. 3b and Fig. 4.) Other operating results are listed in Table II.

The third Bowl Desiltor installation will be made by the Cumberland Cement & Supply Company at their Cumberland, Md., silica sand washing plant, where 10 to 12 tons per hour of minus 100 plus 200-mesh sand will be recovered from the overflow of washing classifiers. The overflow from this 5-ft.-wide by 30-ft. 4-in.-long by 26-ft. dia. unit (about 1,800 g.p.m.) will be sent to a settling lagoon for further clarification.

A fourth unit is planned for a silica sand washing plant in Pennsylvania. Here a 50-ft.-dia. bowl will be combined with a 6-ft.-wide by 31-ft. 8-in.-long rake classifier to recover the minus 100 plus 325-mesh sand in the overflow from washing classifiers. From a feed of 3,000 g.p.m. containing about 2 percent solids, the unit is expected to recover about 6 to 8 tons per hour of the desired sand fraction. Note in Fig. 3c that this unit will be fed at the center of the bowl. Also note that the Desiltor overflow will be further clarified in a thickener.

In comparing the Bowl Desiltor with the settling basin system, the Desiltor is seen to have the following advantages:

1. Makes a cleaner and more uniform classification.
2. Produces a drier final product.
3. Elevates final product for easier subsequent handling.
4. Requires comparatively little installation space.
5. Operates continuously with practically no operating attention.
6. Requires the minimum amount of maintenance.
7. Operates successfully in freezing weather.

Washington News Letter

(*From page* 86)

the neighborhood of 80 percent in taxes; on workers' income the government would receive in the neighborhood of 20 percent in taxes.

The tax loss would have to be made up somehow. Either taxes would have to be raised or government borrowing would have to be increased. It is very unlikely that the already high tax rates will be raised further, particularly in an election year. The other alternative is far more likely.

This furnishes the basis for the argument that wage increases are doubly inflationary. First, they put income into the hands of people who spend their money quickly; second, they reduce the government's income, thereby making it necessary to engage in further deficit financing. The end result is more money in circulation trying to buy a diminishing quantity of goods.

Accelerated Amortization

The steel case developed an interesting side issue. The union attacked the accelerated amortization provisions of the 1950 tax laws. They claimed that accelerated amortization was tantamount to a government gift to the companies. They argued that the taxes which the companies saved because they were permitted to depreciate some of their expanded facilities in five years rather than over the useful life of the facilities, would go a long way toward paying for any allowable wage increase.

This brought about some reappraisal of the accelerated amortization provisions. The results are especially noteworthy.

It was discovered that in many situations instead of reducing the government's tax income, accelerated amortization actually increased it. Here is how that happened.

A particular company producing important defense products would have only a certain amount of taxable income even when operating at capacity. Only because of the accelerated amortization program, that company expanded its facilities. After expansion, its total income would rise and its taxable income, after deducting accelerated amortization, would still be at least as great as before. Thus far there has been no tax loss resulting from accelerated amortization.

After the five-year period no further depreciation or amortization may be taken. If the facilities continue to be used, the government's tax income is greater than it otherwise would be.

Particularly if the defense program continues for many years as is currently predicted, the situation described will occur many times.

Chief Joseph Builders

(*From page* 92)

ment and sand temperatures. Both crushed ice and ice water are also used in the hottest months. The first concrete was placed about the middle of August, 1951.

Practically all the screens in the plant were supplied by Allis-Chalmers, the woven-cloth mesh having been designed and supplied by the California Wire Cloth Company, Oakland, Calif. Pioneer "Reliance" belting is standard on the conveyors.

Before any work could be started, the government first planned and built an excellent 10½-mile paved access highway along the north bank of the Columbia from U. S. Highway 97 at Brewster, Wash., to the

(*Continued on page* 107)

A distant view of the aggregates plant, the primary plant at the left building up the surge stockpile.

Percentage Depletion for Nonmetallic Minerals in the Revenue Act of 1951

By JOHN T. SAPIENZA
and
WILLIAM H. DECK

Editor's Note: The article below is an adaptation from a study made by John T. Sapienza and William H. Deck of the law firm of Covington & Burling, Union Trust Building, Washington, D. C., for the National Sand and Gravel Association and the National Industrial Sand Association.

THE Revenue Act of 1951 extends the benefits of percentage depletion to the producers of many additional nonmetallic minerals who previously could take depletion deductions only on a cost or discovery basis. The additional items now covered are as follows:

At the 5 percent rate: sand, gravel, slate, stone (including pumice and scoria), brick and tile clay, shale, oyster shell, clam shell, granite, marble, sodium chloride, and, if from brine wells, calcium chloride, magnesium chloride and bromine.

At the 10 percent rate: asbestos, brucite, dolomite, magnesite, perlite, wollastonite, calcium carbonates, and magnesium carbonates.

At the 15 percent rate: aplite, garnet, borax, fuller's earth, tripoli, refractory and fire clay, quartzite, diatomaceous earth, metallurgical grade limestone, and chemical grade limestone.

Percentage depletion is not new to the income tax laws of the United States. A form of percentage depletion was permitted in the first Revenue Act of 1913 in the case of mines. The Revenue Act of 1926 contained provisions for percentage depletion of oil and gas wells. The 1932 Act made subject to percentage depletion coal mines, metal mines, and sulphur mines. Subsequent revenue acts have added various other products, and Congress in passing the 1951 Act finally extended percentage depletion to the products listed above.

Producers who have had the benefit of percentage depletion for a number of years are probably familiar with most of the problems involved. Those who are coming under this provision for the first time, however, will find that numerous questions will arise which must be answered before tax returns may be prepared. Some more common questions which have been brought up by producers who are taking percentage depletion this year for the first time are set forth below, together with the applicable answers. However, it must be remembered that the Bureau of Internal Revenue has not issued new regulations and that the answers to the questions are predicated upon interpretations of the Internal Revenue Code, existing regulations, and court decisions. It may well be that the Bureau of Internal Revenue will take a position different from that indicated in the answers on some of the points involved.

1. QUESTION: Is the percentage depletion allowance taken on the selling price of the material produced?

ANSWER: In most cases, no. The depletion allowance is based on "gross income from the property", which is seldom the same as the selling price of the product. The selling price must be reduced by the amount of rents and royalties paid with respect to the property and by the amount of any processing costs or other costs which are incurred after the product has reached the first commercially marketable stage. In addition to the reduction by the amounts of costs incurred after the product has reached the first commercially marketable stage, the Bureau of Internal Revenue will generally require that a *pro rata* profit on these processes be deducted from the gross selling price of the product to arrive at "gross income from the property".

2. QUESTION: What are some examples of processing and other costs which are to be deducted from selling price to arrive at "gross income from the property"?

ANSWER: Under the Code, the Regulations, and decisions, it would appear that the following do not have to be deducted from the selling price: actual production and processing expenses, including stripping an overburden; transportation within 50 miles to a plant where necessary treatment processes take place; sorting, concentrating, and sintering in the case of minerals customarily sold in the form of a crude mineral product; and crushing, grinding, and beneficiation by various processes (See Regulations 111, Section 29.23(m)-1(f)(1).) in the case of minerals not customarily sold as crude mineral products. Nor do reasonable selling expenses, including commissions deducted by selling agents, loading expense and reasonable cash discounts for prompt payment, have to be deducted.

Expenses which would have to be deducted in arriving at gross income include rents and royalties paid with respect to the property, costs incurred to render a product suitable for a particular purpose if it could reasonably be marketed for a lower price without such processing, trade discounts, and transportation expense incurred after the product reaches a commercially marketable stage. Stockpiling costs, bagging and sacking expense, and expenses of a similar nature may have to be deducted.

In addition, it should be pointed out that gross income for percentage depletion purposes may not include the selling price of used equipment and other extraneous items.

3. QUESTION: What is net income from the property?

ANSWER: Net income from the property is the gross income from the property less operating expenses which are properly attributable to rendering the product commercially marketable and marketing it. Included in the expenses thus deducted from gross income to arrive at net income would be selling expense, loading expense, processing expense to the extent that such expense was necessary to produce a commercially marketable product, depreciation on depreciable equipment used in the ordinary and necessary processes, rents and royalties, and a fairly apportioned share of general overhead. Net income from the property for the purpose of applying the 50 percent limitation, however, is not reduced by a depletion deduction either on a cost basis or a percentage depletion basis.

4. QUESTION: Can the percentage

depletion allowance exceed 50 percent of the property's net income?

ANSWER: No. If, however, the cost depletion allowance is greater than the percentage depletion allowance, it may be taken even though it exceeds 50 percent of net income.

5. QUESTION: With respect to owners, lessors or lessees, who may take percentage depletion?

ANSWER: In general, owner-operators, lessors, lessees, sublessors, sublessees and life tenants may take percentage depletion based upon their gross income from the property, provided that they have an economic interest in the property. If the operator is not the owner of the property, he takes percentage depletion upon the gross income as reduced by rents and royalties, and the recipient of the rents and royalties bases his percentage depletion deduction upon such rents and royalties. The end result is that the total percentage depletion allowance to all of the taxpayers having an economic interest in the property is the specified percentage of the total gross income from the property.

However, each taxpayer may use the depletion method which results in the highest deduction. For instance, a lessee may use percentage depletion with respect to his gross income, while the lessor may use cost depletion with respect to the rents and royalties received by him.

6. QUESTION: What constitutes a sufficient economic interest for percentage depletion purposes?

ANSWER: What constitutes an economic interest is a matter of considerable controversy. Section 29.23(m)-1 of Income Tax Regulations 111 states in part:

". . . An economic interest is possessed in every case in which the taxpayer has acquired, by investment, any interest in mineral in place or standing timber and secures, by any form of legal relationship, income derived from the severance and sale of the mineral or timber to which he must look for a return of his capital. But a person who has no capital investment in the mineral deposit or standing timber does not possess an economic interest merely because, through a contractual relation to the owner, he possesses a mere economic advantage derived from production. Thus, an agreement between the owner of an economic interest and another entitling the latter to purchase the product upon production or to share in the net income derived from the interest of such owner does not convey a depletable economic interest."

This does not mean that a producer must actually pay a lump sum for a leasehold right to a mineral property. It is sufficient if he has a lease for a substantial period of time even though he merely pays a monthly or annual rent or royalty based upon production. The right to the mineral in place and to remove it is the controlling factor.

It appears that a lease for a year or longer is sufficient to qualify a producer as a holder of an economic interest. In the final analysis each case must be decided on its own facts, and it would appear that a lease for a month would be sufficient to give a producer an economic interest if within the month he could remove all or substantially all of the workable deposit.

River operators may in certain cases have an economic interest. If the riparian owners have an exclusive right to remove the adjacent river bottom deposits, they would apparently have an economic interest sufficient to qualify for percentage depletion. If under the applicable laws this interest could be passed by lease or other conveyance to another party, such other party should have a depletable interest.

In some cases a license of a local, state, or the federal government might be considered to have an economic interest. This would depend entirely upon the nature of the licensee's rights, that is, whether he was licensed along with numerous others, any of whom could draw from the deposit, whether the rights were terminable upon notice or within a short period of time, and upon other factors. The decision on this type of case would require a study of the local laws affecting the license or licensing agreement, and no general rule can be laid down which is applicable to all cases.

It is fairly certain that an operator whose rights are terminable at will, or upon short notice by the lessor or licensor, does not have an economic interest sufficient to qualify. It is also fairly clear that an operator who does not have an exclusive right to the deposits being worked does not have a depletable interest. Thus where several operators may work a deposit, each being entitled to take what he wishes, there is no economic interest in any of them whether or not a royalty or severance tax is paid on the product actually removed.

7. QUESTION: Must a written election be made with respect to percentage depletion allowance in the tax return?

ANSWER: It is not necessary to make a written election with respect to percentage depletion. However, Income Tax Regulations 111 at Section 29.23(m)-13 provide that certain information must be filed with the return of a taxpayer claiming a percentage depletion allowance. This is discussed in the answer to Question 23, *infra*.

8. QUESTION: Will each separate operation of a company be classified as a separate mineral property?

ANSWER: This will depend upon each individual case. In general, each operation will be considered a separate mineral property, but where the properties are contained within a single plot, they may be combined for purposes of computing percentage depletion, provided the taxpayer's practice in this respect is consistent.

The privilege of combining the properties into one mineral property may or may not be advantageous. Where several deposits are owned, but some are not being worked, the basis of the ones not being worked would be reduced by the depletion deduction taken on the deposits that are being worked, if the deposits are treated as a single property. If treated as separate properties, the basis of the deposits not being worked would not be reduced because of the depletion deduction taken on the active deposits, even though the basis of the active deposits might be reduced to zero by the aggregate depletion deductions taken. This might be important in case there is a sale of unworked deposits.

On the other hand, it may be that the net income from some of the properties, if treated as separate properties, might be so low as to constitute a serious limitation on the percentage depletion deduction allowable. Under these circumstances, it would probably be helpful to combine these properties with other properties which provide a higher net income in order to prevent the net income limitation from applying.

9. QUESTION: If each operation is considered to be a separate property, what procedure should be followed in allocating overhead and general expense applicable to all the properties?

ANSWER: There is no fixed procedure for allocating expense attributable to several tracts between individual tracts. The Regulations do require, however, that the relative production of the properties be taken into account. Any reasonable method will probably be acceptable to the Bureau of Internal Revenue.

10. QUESTION: If the properties are treated as separate properties for percentage depletion purposes, may they be combined for exempt excess output purposes under Section 453(a)(10) of the Internal Revenue Code?

ANSWER: Yes. Section 453 (a)(10) does not condition the right to treat several properties as one property upon the taxpayer treating the properties in the same manner for other purposes.

11. QUESTION: Are the benefits of Section 453 available in addition to percentage depletion? If so, does percentage depletion enter into the Section 453 computation?

ANSWER: A taxpayer entitled to the benefits of percentage depletion may also be entitled to the benefits of Section 453 with respect to exempt excess output, provided it meets the statutory requirements.

A taxpayer must compute the normal unit profits for the normal period (taxable years beginning after December 31, 1945, and not ending after June 30, 1950) with the depletion deduction computed on the same basis that the depletion deduction is computed for the current taxable year. In other words, if a taxpayer in the current year has the benefit of a percentage depletion, but did not have it in the normal period, the profit for the normal period must be recomputed using a percentage depletion deduction. This may tend to reduce the normal unit profit, and thus to reduce the benefit accorded by the exempt excess output provisions. On the other hand, it is possible that the normal unit profit might be increased by the recomputation if a cost depletion deduction during the normal period was larger than a percentage depletion deduction.

12. QUESTION: May percentage depletion be taken even though the operator has no cost or other basis for the depletable asset?

ANSWER: Yes. A producer who qualifies in other respects for percentage depletion may take the deduction even though he has no cost or other basis for the depletable asset, and even though he originally had a cost basis that has been reduced to zero by prior depletion deductions taken on a cost, percentage, or other basis.

13. QUESTION: Is the basis of the depletable asset reduced by the percentage depletion deductions taken?

ANSWER: Yes. The basis of a depletable asset is reduced by the higher of a cost or percentage depletion deduction. The Internal Revenue Code does not provide for an election between the two methods. It provides that the allowance for depletion shall be the higher of the two. Even in loss years, the basis of the depletable asset will be reduced by the higher of the deductions.

As explained in the answer to Question 12 above, a taxpayer may continue to take the percentage depletion deduction after the basis of the depletable asset is reduced to zero.

14. QUESTION: Is percentage depletion an allowable deduction for normal tax, surtax, and excess profits tax purposes?

ANSWER: Yes. If a taxpayer meets the statutory qualifications for using the percentage depletion method, it may be used for the purpose of computing the income subject to normal tax, surtax, and excess profits tax. Of course, if cost depletion results in a higher deduction, the taxpayer may use the cost depletion method in computing the income subject to all three of the taxes.

15. QUESTION: Is an operator on a fiscal year basis, June 1 to May 31, who is permitted to take percentage depletion for the first time under the Revenue Act of 1951, entitled to take percentage depletion from January 1 to May 31, 1951?

ANSWER: No. Section 319(c) of the Revenue Act of 1951 (Public Law 183—82nd Cong., Chapter 521—First Session) specifically provides that the amendments made with respect to percentage depletion shall be applicable only with respect to taxable years beginning after December 31, 1950. The first applicable taxable year of such a taxpayer with a fiscal year from June 1 to May 31 would be the fiscal year June 1, 1951, to May 31, 1952. No percentage depletion would be allowed such taxpayer for the period January 1, 1951, to May 31, 1951.

16. QUESTION: Can depletion deductions be accumulated for future application? How do depletion deductions affect net operating losses and net operating loss deductions?

ANSWER: Depletion deductions cannot be accumulated for future application as such. In the case of cost depletion, there may be an indirect application to profits of other years if the producer has a net operating loss carry-back or carry-over. In such event, to the extent that a cost depletion deduction was not utilized in the taxable year to which ordinarily applicable because there was an absence of profit, the deduction may go to increase the net operating loss deduction for another year.

In the case of a percentage depletion deduction, however, to the extent that it exceeds a cost depletion deduction, it may not be used to increase a net operating loss. Section 122 of the Internal Revenue Code specifically provides for an adjustment in computing a net operating loss for the excess of percentage depletion over cost depletion. It also provides that the excess of percentage depletion over cost depletion for the year to which a net operating loss deduction is being applied shall be deducted from the aggregate net operating loss carry-overs and carry-backs in determining the amount of the net operating loss deduction. Thus the excess of percentage depletion over cost depletion for both the year of the net operating loss and the year to which the loss is carried serves to reduce the net operating loss deduction.

17. QUESTION: Is net income from the property for the purpose of computing the 50 percent limitation on the percentage depletion deduction reduced by a net operating loss deduction?

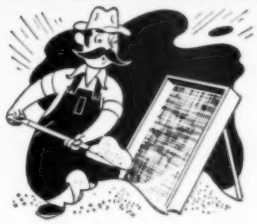
ANSWER: The net income for the purpose of applying the 50 percent limitation is reduced by any net operating loss deduction which may be available to the taxpayer. However, in computing the net operating loss deduction, the aggregate net operating loss carry-overs and carry-backs are first reduced by the excess of percentage depletion over cost depletion for the year to which the net operating loss deduction is being applied.

18. QUESTION: Where several separate deposits are being worked, can percentage depletion be computed on the gross income received at the several shipping points, or must the same base be used for all shipments?

ANSWER: To the extent practicable, percentage depletion is based on the gross income received for the mineral product at the property. There is no requirement that a common shipping point must be used where there are several mineral properties involved. Of course, if the producer processes the product in order to bring it to a marketable condition, and in connection with such processing he transports the product from the deposit to a place of processing within 50 miles, he is not required to deduct from gross income the cost of such transportation. It is possible that some

(*Continued on page* 109)

Screenings



by William M. Avery

MAYBE it's all on account of our own personal post-holiday doldrums, but the incoming mail of late has seemed almost completely lacking in grist for this department's mill. There's a lot of daffy activity going on in a good many quarters, but the pit-and-quarry fraternity seems to be almost frantically preoccupied with minding its own P's and Q's. While this unquestionably is a good thing for the industry as a whole, just now it's throwing a hellish strain on the whimsey department, and we hope to blazes that things'll get back to normal before we burn out our clutch.

Anyhow, as a means of weathering the drought, we're shifting to a somewhat finer mesh for this month's lead. The items contained in the following miscellany have nothing in common except that they evoked in us a flicker of interest when we first encountered them:

By making extensive use of hard-wall plaster, sand, and lime, Hollywood studios can simulate such disparate materials as bark, bamboo netting, trees and ferns, stones and rocks, shingles, tile, brick, and a host of others, and make them look more like the originals than the originals do themselves.

* * *

The two Morse code characters, dot and dash, were named by Morse after the two children (Dorothy and Dashiel) of Millard Fillmore, thirteenth president of the United States.

The first rotary cement kilns comparable to those in use today were operated by the Edison Portland Cement Works under patents granted to Thomas A. Edison.

* * *

All cheeses of the Roquefort type are ripened in limestone caves.

* * *

The "fifth" became an accepted unit of measure in bottling liquor because early Scotch golfers required exactly that amount to complete 18 holes.

* * *

The first reinforced-concrete structure ever built is believed to have been a boat. It was turned out by the Frenchman, Lambot, in 1850.

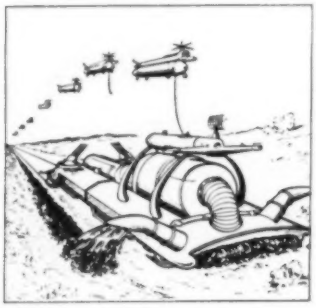
* * *

Du Pont's widely-used chemical rubber known as Neoprene is made from salt, coal, and limestone.

* * *

St. Barbara, a third century virgin martyr, is regarded as the patron saint of miners, artillerymen, and others who use explosives, because her father, after officiating at her martyrdom, was struck dead by lightning as he returned home.

* * *



Not So Mighty, Now

INTERCONTINENTAL swapping of historic rocks continues unabated. A 165-lb. chunk from the top of the Matterhorn, Switzerland's highest mountain, has just been flown to New York to become a permanent exhibit in the new Swiss center there. Its purpose, we assume, is to provide local mountain-climbing enthusiasts an opportunity to scale the mighty Matterhorn on a stay-at-home basis.

* * *

A Mere Detail

A CHARACTER who calls himself an "imagineer" has dreamed up (on paper) an armor-plated road builder which slaps down a concrete highway at the dizzy rate of 240 miles a day while helicopter transit mixers feed it on the fly. He's sketched an imposing looking shell for the thing (see cut), and all it needs now is for some bird-brained engineer to figure out wot in 'ell to put inside to make it work.

Short Count

A CLIPPING we've just received claims that sand now can be reduced to such extreme fineness that a cubic inch contains half a trillion particles. We dislike carping, but the sample we counted the other day was short by 17 particles.

* * *

Many a Slip . . .

AN Eastern city is reported to be experimenting this winter with the use of green-tinted sand on slippery streets. It is hoped that the coloring will serve the dual purpose of clearly marking the slippery spots, and proving to the taxpayer that the job has actually been done. Just at the moment, however, we've a notion that the average taxpayer is more concerned about slippery tax collectors than he is about slippery streets, and it may be some time before his attention can be diverted by a gimmick like colored sand.

* * *

Ducky Outlook

AN INTRIGUING new market for the aggregate industry is suggested by word from Denmark that the ancient art of ducks-and-drakes (skipping stone across water, that is) has been elevated to the status of an organized sport. If the thing should catch hold on this

side of the pond, there's no telling how much tonnage might be involved, to say nothing of its providing an almost heaven-sent opportunity for aggregate producers to get rid of flats on a remunerative basis.

How to Get More Out of a Plant Power System with Synchronous Motors

By J. C. MOORE
Large Motor and Generator Dept.
General Electric Company

IN these days of rapidly expanding production, with the consequent upswing in the installation of production machinery, many plant engineers are concerned about increasing the load on power systems which are already loaded almost to capacity. Others are contemplating the addition of new power systems, where existing systems obviously cannot handle an expanding load.

In either case, high plant power factors are of prime importance, because the load which any power system will carry is proportional to the plant power factor, which is expressed as kw. load divided by the kv.-a. load. The efficiency of the whole plant power system increases as the power factor approaches unity. A higher power factor may make it possible to increase the hp. load safely on an existing system. It can also mean less investment in transformers, feeder lines, and voltage regulating device if a new system is required.

Good operating conditions require high power factors, too. Poor power factor often results in voltage drops which increase the slip of induction motors to the point where production is adversely affected. If the voltage drops more than 10 percent below normal, it is quite possible for induction motors to become overheated or to stall—and excessive power system losses, poor plant lighting conditions, large power bills, and increased maintenance costs of the power supply commonly accompany poor power factor.

In most systems poor power factor is caused by excessive demands for magnetizing current (reactive kv.-a.) by induction motors at part loads, transformers, electric furnaces, electric welders, and other inductive equipment. This magnetizing current, although necessary, does no measurable work, of course, and limits the power which a system can carry.

When a new motor drive (75 hp. or larger) is needed in a plant, the installation of a synchronous motor can economically improve plant power factor. A unity power factor synchronous motor (current in phase with the voltage) accomplishes this by adding to the kw. load on a power system without increasing the reactive kv.-a. load, since it needs no magnetizing current to operate when normally excited at full load. In other words, it brings the ratio kw./kv.-a. closer to 1. For example, if a 1000-hp. unity power factor synchronous motor is added to a 1000-hp. plant load having a power factor of .80, the new load of 2,000 hp. would have a power factor of .935.

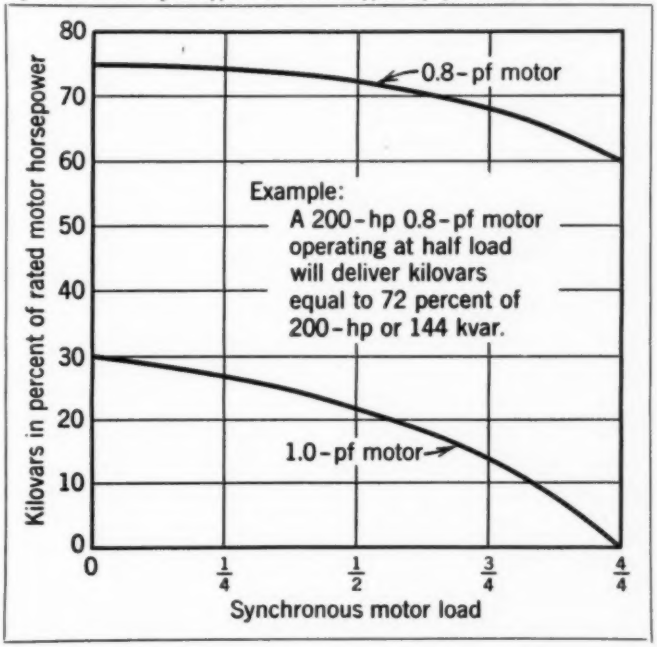
A leading power factor synchronous motor (current leading the voltage) improves plant power factor because it acts as a kilovar generator, and can supply fairly large amounts of kilovars to a power system while performing its usual driving duties.

The ability of either unit power factor or 0.8 power factor synchronous motors to improve power factor is a function of load and excitation. Decreasing the mechanical load without changing the field excitation increases the reactive kv.-a. output of the motor. Fig. 1 shows the reactive kv.-a. that two typical synchronous motors will deliver under various load conditions with normal excitation. It is seldom economical to operate a synchronous motor at part load in order to gain greater power-factor improvement. The motor should never be over-excited for this purpose, as this practice can lead to serious overheating.

Another desirable characteristic of the synchronous motor with regard to its effect on the plant power supply is its tendency to stabilize the voltage. Under conditions of high voltage, the reactive kv.-a. furnished by a synchronous motor decreases, and under conditions of low voltage within reasonable limits, it increases. The motor, therefore, has a tendency to hold a constant voltage in the power supply.

Furthermore, synchronous motors usually have a higher full-load efficiency than any other type of motor, and produce a greater amount of work per dollar's worth of power consumed. Where loads are heavy and continuous, an advantage of from 0.5 to 3.0 percent in efficiency

Fig. 1. Curves showing the approximate kilovars supplied by synchronous motors.



saves a considerable sum in operating expense, and leaves more power available for other plant equipment. At reduced loads, the difference becomes greater to a marked degree. An efficiency of 75 percent at 5 percent load has been attained in a synchronous motor.

Whether a synchronous motor should be installed for power factor correction depends upon several factors. A careful study might reveal that the particular plant and application might lend themselves better to induction motors and capacitors under certain conditions. The total cost, total load, present power factor, and the amount of power factor improvement desired all have a bearing on the type of apparatus best suited for power factor improvement. Moreover, the provisions

Fig. 3. Leading reactive kv.-a. per kw. input for synchronous motors. Example: To find the horsepower rating of 0.8 power factor synchronous motor required to furnish the 84.2 kvar. determined by Fig. 2. The table shows an 0.8 power factor synchronous motor furnishes 0.75 kvar. per kw. input. The 84.2 kvar. required divided by 0.75 equals 112.3 kw. Converting this value to approximate horsepower (neglect motor efficiency and divide by .746), we see that a 150-hp. motor at 0.8 power factor would be recommended.

Pf.	Kvar	Pf.	Kvar
1.00	.000	.74	.909
.99	.142	.73	.936
.98	.203	.72	.964
.97	.251	.71	.992
.96	.292	.70	1.020
.95	.329	.69	1.049
.94	.363	.68	1.078
.93	.395	.67	1.108
.92	.426	.66	1.138
.91	.456	.65	1.169
.90	.482	.64	1.201
.89	.512	.63	1.233
.88	.540	.62	1.266
.87	.567	.61	1.299
.86	.593	.60	1.333
.85	.620	.59	1.368
.84	.646	.58	1.405
.83	.672	.57	1.442
.82	.698	.56	1.479
.81	.724	.55	1.508
.80	.750	.54	1.559
.79	.776	.53	1.600
.78	.802	.52	1.643
.77	.829	.51	1.687
.76	.855	.50	1.732
.75	.882		

Original Power Factor ($\cos \theta_1$)	Desired Improved Power Factor ($\cos \theta_2$)																				
	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.0
0.50	0.982	1.008	1.034	1.060	1.086	1.112	1.139	1.165	1.192	1.220	1.248	1.276	1.306	1.337	1.369	1.403	1.440	1.481	1.529	1.589	1.732
0.51	0.937	0.962	0.989	1.015	1.041	1.067	1.094	1.120	1.147	1.175	1.203	1.231	1.261	1.292	1.324	1.358	1.395	1.436	1.484	1.544	1.687
0.52	0.893	0.919	0.945	0.971	0.997	1.023	1.050	1.076	1.103	1.131	1.159	1.187	1.217	1.248	1.280	1.314	1.351	1.392	1.440	1.500	1.643
0.53	0.850	0.876	0.902	0.928	0.954	0.980	1.007	1.033	1.060	1.088	1.116	1.144	1.174	1.205	1.237	1.271	1.308	1.349	1.397	1.457	1.600
0.54	0.809	0.835	0.861	0.887	0.913	0.939	0.966	0.992	1.019	1.047	1.075	1.103	1.133	1.164	1.196	1.230	1.267	1.308	1.356	1.416	1.559
0.55	0.769	0.795	0.821	0.847	0.873	0.899	0.926	0.952	0.979	1.007	1.035	1.063	1.093	1.124	1.156	1.190	1.227	1.268	1.316	1.376	1.519
0.56	0.730	0.756	0.782	0.808	0.834	0.860	0.887	0.913	0.940	0.968	0.996	1.024	1.054	1.085	1.117	1.151	1.188	1.229	1.277	1.337	1.480
0.57	0.692	0.718	0.744	0.770	0.796	0.822	0.849	0.875	0.902	0.930	0.958	0.986	1.016	1.047	1.079	1.113	1.150	1.191	1.239	1.299	1.442
0.58	0.655	0.681	0.707	0.733	0.759	0.785	0.812	0.838	0.865	0.893	0.921	0.949	0.979	1.010	1.042	1.076	1.113	1.154	1.202	1.262	1.405
0.59	0.619	0.645	0.671	0.697	0.723	0.749	0.776	0.802	0.829	0.857	0.885	0.913	0.943	0.974	1.006	1.040	1.077	1.118	1.166	1.226	1.369
0.60	0.583	0.609	0.635	0.661	0.687	0.713	0.740	0.766	0.793	0.821	0.849	0.877	0.907	0.938	0.970	1.004	1.041	1.082	1.130	1.190	1.333
0.61	0.549	0.575	0.601	0.627	0.653	0.679	0.706	0.732	0.759	0.787	0.815	0.843	0.873	0.904	0.936	0.970	1.007	1.048	1.096	1.156	1.299
0.62	0.516	0.542	0.568	0.594	0.620	0.646	0.673	0.699	0.726	0.754	0.782	0.810	0.840	0.871	0.903	0.937	0.974	1.015	1.063	1.123	1.266
0.63	0.483	0.509	0.535	0.561	0.587	0.613	0.640	0.666	0.693	0.721	0.749	0.777	0.807	0.838	0.870	0.904	0.941	0.982	1.030	1.090	1.233
0.64	0.451	0.474	0.503	0.529	0.555	0.581	0.608	0.634	0.661	0.689	0.717	0.745	0.775	0.806	0.838	0.872	0.909	0.950	0.998	1.058	1.201
0.65	0.419	0.445	0.471	0.497	0.523	0.549	0.576	0.602	0.629	0.657	0.685	0.713	0.743	0.774	0.806	0.840	0.877	0.918	0.966	1.026	1.169
0.66	0.388	0.414	0.440	0.466	0.492	0.518	0.545	0.571	0.598	0.626	0.654	0.682	0.712	0.743	0.775	0.809	0.846	0.887	0.935	0.995	1.138
0.67	0.358	0.384	0.410	0.436	0.462	0.488	0.515	0.541	0.568	0.596	0.624	0.652	0.682	0.713	0.745	0.779	0.816	0.857	0.905	0.965	1.108
0.68	0.328	0.354	0.380	0.406	0.432	0.458	0.485	0.511	0.538	0.566	0.594	0.622	0.652	0.683	0.715	0.749	0.786	0.827	0.875	0.935	1.078
0.69	0.299	0.325	0.351	0.377	0.403	0.429	0.456	0.482	0.509	0.537	0.565	0.593	0.623	0.654	0.686	0.720	0.757	0.798	0.846	0.906	1.049
0.70	0.270	0.296	0.322	0.348	0.374	0.400	0.427	0.453	0.480	0.508	0.536	0.564	0.594	0.625	0.657	0.691	0.728	0.769	0.817	0.877	1.020
0.71	0.242	0.268	0.294	0.320	0.346	0.372	0.399	0.425	0.452	0.480	0.508	0.536	0.566	0.597	0.629	0.663	0.700	0.741	0.789	0.849	0.992
0.72	0.214	0.240	0.266	0.292	0.318	0.344	0.371	0.397	0.424	0.452	0.480	0.508	0.538	0.569	0.601	0.635	0.672	0.713	0.761	0.821	0.964
0.73	0.186	0.212	0.238	0.264	0.290	0.316	0.343	0.369	0.396	0.424	0.452	0.480	0.510	0.541	0.573	0.607	0.644	0.685	0.733	0.793	0.936
0.74	0.159	0.185	0.211	0.0237	0.263	0.289	0.316	0.342	0.369	0.397	0.425	0.453	0.483	0.514	0.546	0.580	0.617	0.658	0.706	0.766	0.909
0.75	0.132	0.158	0.184	0.210	0.236	0.262	0.289	0.315	0.342	0.370	0.398	0.426	0.456	0.487	0.519	0.553	0.590	0.631	0.679	0.739	0.882
0.76	0.105	0.131	0.157	0.183	0.209	0.235	0.262	0.288	0.315	0.343	0.371	0.399	0.429	0.460	0.492	0.526	0.563	0.604	0.652	0.712	0.855
0.77	0.079	0.105	0.131	0.157	0.183	0.209	0.236	0.262	0.289	0.317	0.345	0.373	0.403	0.434	0.466	0.500	0.537	0.578	0.626	0.686	0.829
0.78	0.052	0.078	0.104	0.130	0.156	0.182	0.209	0.235	0.262	0.290	0.318	0.346	0.376	0.407	0.439	0.473	0.510	0.551	0.599	0.659	0.801
0.79	0.026	0.052	0.078	0.104	0.130	0.156	0.183	0.209	0.236	0.264	0.292	0.320	0.350	0.381	0.413	0.447	0.484	0.525	0.573	0.633	0.776
0.80	0.000	0.026	0.052	0.078	0.104	0.130	0.157	0.183	0.210	0.238	0.266	0.294	0.324	0.355	0.387	0.421	0.458	0.499	0.547	0.609	0.750
0.81		0.000	0.026	0.052	0.078	0.104	0.131	0.157	0.184	0.212	0.240	0.268	0.298	0.329	0.361	0.395	0.432	0.473	0.521	0.581	0.724
0.82			0.000	0.026	0.052	0.078	0.105	0.131	0.158	0.186	0.214	0.242	0.272	0.303	0.335	0.369	0.406	0.447	0.495	0.555	0.698
0.83				0.000	0.026	0.052	0.079	0.105	0.132	0.160	0.188	0.216	0.246	0.277	0.309	0.343	0.380	0.421	0.469	0.529	0.672
0.84					0.000	0.026	0.053	0.079	0.106	0.134	0.162	0.190	0.220	0.251	0.283	0.317	0.354	0.395	0.443	0.503	0.646
0.85						0.000	0.027	0.053	0.080	0.108	0.136	0.164	0.194	0.225	0.257	0.291	0.328	0.369	0.417	0.477	0.620
0.86							0.000	0.026	0.053	0.081	0.109	0.137	0.167	0.198	0.230	0.264	0.301	0.342	0.390	0.450	0.593
0.87								0.000	0.027	0.055	0.083	0.111	0.141	0.172	0.204	0.238	0.275	0.316	0.364	0.424	0.567
0.88									0.000	0.028	0.056	0.084	0.114	0.145	0.177	0.211	0.248	0.289	0.337	0.397	0.540
0.89										0.000	0.028	0.056	0.086	0.117	0.149	0.183	0.220	0.261	0.309	0.369	0.512
0.90											0.000	0.028	0.058	0.089	0.121	0.155	0.192	0.233	0.281	0.341	0.484
0.91												0.000	0.030	0.061	0.093	0.127	0.164	0.205	0.253	0.313	0.456
0.92													0.000	0.031	0.063	0.097	0.134	0.175	0.223	0.283	0.426
0.93														0.000	0.032	0.066	0.103	0.144	0.192	0.252	0.395
0.94															0.000	0.034	0.071	0.112	0.160	0.220	0.363
0.95																0.000	0.037	0.079	0.126	0.186	0.329
0.96																	0.000	0.041	0.089	0.149	0.292
0.97																		0.000	0.048	0.108	0.251
0.98																			0.000	0.060	0.203
0.99																				0.000	0.143
																					0.000

Fig. 2. Kw. multipliers for determining kilovars required for power-factor improvement. Example: A plant has an input of 200 kw. at a power factor of 80 percent. To find the reactive kv.-a. required to raise the plant power factor to a desired 95 percent, multiply the 200 kw. by the factor found in the table under 95 percent opposite the original power factor of 80 percent, or 0.421. Kvar. required, therefore, is 200 times 0.421 or 84.2 kvar.

made for obtaining a high power factor in a brand new plant are likely to be quite different from those feasible in an existing plant.

Fig. 2 is a tabulation of multipliers which may be used to determine the number of kilovars required to improve power factor by given degrees. Fig. 3 shows the kilovars generated by synchronous motors per kw. input at various power factors. These tables may be used together to determine the approximate size of synchronous motor which would be needed to accomplish a required power factor improvement.

Besides their ability to improve the efficiency of plant power systems, synchronous motors have other characteristics which make them especially suitable for many kinds of large motor drives.

1. They may be obtained at very low speeds, thus eliminating or reducing the need for speed-reducing gears.

2. The construction of low-speed synchronous motors results in a saving in space along the shaft when the motor is to be overhung or built into the driven machine.

3. Split rotor construction is optional in low-speed types, which facilitates assembly on the shafts of driven machines.

4. Low maintenance costs are the result of inherently simple construction which leaves all parts accessible.

5. In ratings where the hp. is equal to or greater than the speed, they have a lower first cost, including control and exciter, than any other a.-c. motor with its control.

6. A wide range of torques is available to make possible starting under heavy loads.

7. Dynamic braking brings heavy loads to a smooth, quick stop.

8. Since they run at an exact rated speed, they insure a constant rate of production in constant-speed applications. This feature is not affected by voltage changes.

9. They have an inherently large air gap, making field assembly and maintenance easy and economical.

The combined economic and operating advantages of synchronous motors make their consideration worthwhile where any plant requires a new large motor drive. In many instances the installation of synchronous motors is the most economical method of improving plant power factor when their ability to provide efficient mechanical power at the same time is considered.

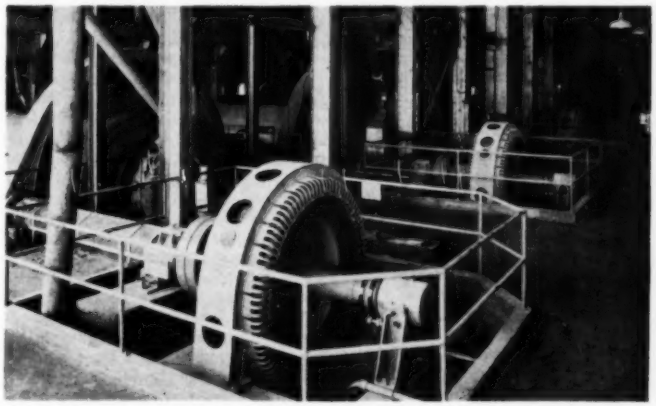


Fig. 4. Four 500-hp. synchronous motors driving ball mills in a West Coast cement plant.

Chief Joseph Builders

(*From page* 100)

dam site. This is the road used by the cement and aggregate trucks, the road crossing the Okanogan River enroute *via* a new $300,000 bridge. Another new bridge across the Columbia connects the town of Bridgeport on the south side of the river with the construction activity and the new access road on the north.

W. N. Evans is project manager and K. L. Parker, project engineer, for the contractor. Tony Freitas is aggregate-plant superintendent, and Jim Drinnon supervises the concrete and cooling plants. Construction of the dam is scheduled for completion and the first four generators are to be in service some time during 1956.

Columbia Gypsum

(*From page* 94)

ings in downtown Spokane have taken the bulk of the 1951 tile output.

Plans for adding a board machine and dryer and the erection of a 60- by 270-ft. plant addition to house this equipment are still in the drafting-board and engineering stage, but the management hopes to make this a reality in the near future.

Much of the equipment used in the plant was manufactured in Spokane by the General Machinery Company. Included were the kettle, furnace and hot-pit, the dust collector, tube-mill, air conveyors, and the various bins and storage tanks.

Dubuque Stone Products

(*From page* 97)

purchaser discharges directly from railroad embankments.

When it is desired to produce riprap, the jaws of the primary crusher are opened to about 12 in. Operating in this manner, about 50 percent of the material fed to the primary crusher falls into the plus 6-in. category required for riprap. This so-called manufactured one-man riprap can be loaded at the rate of one car an hour.

Under the present method of operation all minus 1-in. material, including impurities, is removed from the flow in the first screening operation beyond the primary crusher, and only clean stone, 1-in. and up in size, goes into the surge pile. A portion of the minus 1-in. material goes into a special bin next to the rail siding for handling truck orders for road stone and fill.

The property has a 1960-ft. rail siding which is served by the Milwaukee railroad. The high point of the siding is at the truck dumping ramp, and 20 cars can be handled in either direction from the ramp. There is also a carpuller to facilitate loading and handling cars.

All units in the plant proper are driven electrically. Items of auxiliary operating equipment include an Allis-Chalmers "50" gasoline-powered bulldozer, used for road maintenance, feeding from the surge pile, pulling cars, and quarry clean-up work, and a ¾-cu. yd. gasoline-powered Thew shovel used for reclaiming stockpiled materials.

Including a crew of seven who work in the quarry, the Dubuque plant employs 13 men in actual production. Officers of the firm are Charles J. Spahn, president, Robert C. Collier, vice-president, L. B. Bray, secretary, and Paul N. Nauman, treasurer and general manager. Clarence Schuster is plant superintendent.

Report on Current Labor Developments

Social Security for Self-Employed Businessmen

By S. HERBERT UNTERBERGER

Industrial & Labor Economist
Washington, D. C. — Philadelphia, Pa.

SELF-EMPLOYED businessmen are now covered by the Social Security Act. Before filing their 1951 income tax returns—at the latest, before March 15—business proprietors who do not already have Social Security numbers will have to visit their nearest Social Security field office and obtain them. The first Social Security tax payment must accompany the 1951 return. The 1951 income tax return Form 1040, used by self-employed persons, has a new line—5(B) on page 1—for the amount of the Social Security tax owed for 1951. In figuring this tax, supplements to Form 1040—Schedules C and Ca—must also be used.

How Much is This Going to Cost?

For the years 1951, 1952, and 1953, the tax will be 2¼ percent of the first $3,600 of net earnings from self-employment. For those who generally make more than $3,600 per year—and this includes most established business proprietors—the tax would amount to $81 a year for the first three years. This tax will be payable together with the individual's final income tax return. The first payment will be due, therefore, by March 15, 1952.

For the following six years, the tax is scheduled to go to 3 percent, or a maximum of $108 a year. Thereafter the law calls for further increases up to 4⅞ percent by 1970. However, these higher rates may never become effective. Formerly, the Social Security Act also provided a series of tax rate increases; but practically every time one was due, Congress postponed it.

Bargain Rate for Self-Employed

The original Social Security Act was designed to benefit employees exclusively. Nevertheless, some businessmen valued its benefits so highly that they incorporated their businesses in order to assume the status of employees and were thereby covered by the law. For them the tax was and continues to be a total of 3 percent. Under this new provision persons who operate their own business, either individually or in partnerships, will receive the same benefits, but their tax will be one-fourth less—only 2¼ percent.

How Large a Pension?

This is what the self-employed businessman will get for his money! If he retires at the age of 65 or thereafter, he will be entitled to a monthly pension for the rest of his life, equal to 50 percent of the first $100 of his average monthly taxable earnings, plus 15 percent of the next $200. The law calls this amount his "primary insurance amount." For the businessman who makes at least $3,600 each year, his pension will amount to $80 a month. In addition, his wife will also be entitled to a monthly pension at the age of 65 for the rest of her life. This will be equal to half her husband's "primary insurance amount," or an additional $40 a month. If her husband dies, she will receive three-fourths of his "primary insurance amount" or $60 a month as long as she remains unmarried.

To qualify for this Old-Age Insurance at the age of 65, a self-employed businessman must be covered for at least six calendar quarters. A person who begins to be covered on January 1, 1950, could, at the earliest, begin to receive benefits for the period beginning July 1, 1951.

Let us see how this works out for a typical business proprietor. Suppose he is 40 years old when he is first covered by the law on January 1, 1950, and his wife is 38 years old. If he continues to earn at least $3,600 each year, by the time he is 65 and ready to retire, he will have paid in Social Security taxes between $2,025 and $3,429 depending on whether the tax rate rises and how rapidly it rises.

According to the mortality tables generally used when calculating the cost of pensions, a man aged 65 is likely to live approximately 14 years and 5 months, or 173 months. If he retires at 65, he will be able to draw a total of $13,840 in pensions. His wife at the age of 65 is likely to live approximately 17 years and 7 months, or 211 months. She doesn't get to be 65 until 2 years later. At that time she begins to draw $40 a month for 149 months during her husband's life and then she draws $60 a month for the remaining 62 months of her lifetime. This amounts to a total of $9,680. Between the two of them this typical couple would draw a total of $23,520 in benefits. Of special importance to businessmen is the fact that these pensions are all tax-free.

Without affecting his pension the retired businessman may earn up to $600 a year from employment or self-employment covered by the law, and he may continue to receive unlimited income from his investments. Furthermore, earnings from employments not covered by the law, such as farming or practising a licensed profession, will not interfere with this pension.

General Taxes Pay Part of the Pension

So far, coverage by the Social Security Act for business proprietors seems to be a good deal. At a lower tax rate, they get the same benefits as their corporate counterparts. It appears that they receive back in benefits much more than they pay in Social Security taxes. As a matter of fact, if a 40-year-old businessman were to buy an annuity from an insurance company which would provide him with approximately the same benefits, it would cost him several times as much as the Social Security tax. To secure an equivalent income from investment, he would have to save over $50,000.

How is it possible to pay in between $2,000 and $4,000 and to get back over $20,000? Part of the answer, of course, is that not everyone will live to collect his pension. Fewer than three out of four persons between the ages of 38 and 40 live to be 65. Another part of the answer is that the money paid in is invested in government bonds at compound interest. A third part of the answer is that not everyone who is eligible will retire at 65. Insofar as they retire later, the amount paid out in pensions will be much less. Furthermore, some individuals may never become eligible because they have too little covered employment. The taxes paid on their earnings remain in the fund from which pensions are paid. The last part of the answer is that in the long run, the amount paid in, plus interest earned on it, will not be sufficient to pay all the pensions due. Where will the difference come from? The government will probably pay it out of its general tax funds. Self-employed businessmen will certainly pay a significant part of these taxes. Being covered by the Social Security Act, they may now also derive some benefits from those taxes.

Additional Old-Age Benefits

In addition to pensions for himself and his wife at the age of 65,

his dependents are also eligible for benefits. If during retirement he has unmarried dependent children under the age of 18, each such child is entitled to receive monthly benefits equal to half his "primary insurance amount," $40 in most cases, until the child marries or reaches the age of 18. While his wife has such an unmarried dependent child in her care, she, too, will receive monthly benefits equal to half his "primary insurance amount," even if she is under 65. But all benefits combined may not exceed $150 a month.

Insurance for Survivors

If the self-employed businessman should die before he retires, then his dependents would be entitled to Survivors Insurance. Each unmarried dependent child under the age of 18 would be entitled to monthly benefits equal to half his "primary insurance amount," plus one-fourth his "primary insurance amount" divided by the number of children. In most cases this would amount to between $40 and $60. While his widow has such an unmarried dependent child in her care, she is entitled to monthly benefits equal to three-fourths of his "primary insurance amount," $60 in most cases, as long as she remains unmarried. Finally, if the self-employed businessman should die leaving no widow or children eligible for benefits, his dependent parents, aged 65 or over, would be entitled to receive monthly benefits equal to three-fourths his "primary benefit amount." As with Old Age Insurance, the total benefits under Survivors Insurance may not exceed $150 a month.

Percentage Depletion

(*From page* 103)

producers may have a common processing point at which the mineral product of several different deposits within a 50-mile radius is processed. In this case the gross income could be based upon the selling price at the processing location without reduction for the transportation cost incurred in bringing the product from the deposit to the point. Transportation costs incurred after the product reaches a marketable stage, however, would have to be deducted in determining gross income from the property.

19. QUESTION: Where a producer uses part of the product produced in a manufacturing process or other operation resulting in the production of a more finished product, what selling price should be attached to the portion so used for purposes of computing the percentage depletion allowance?

ANSWER: Generally, for the purpose of computing the percentage depletion allowance in this type of case, the market price (at the date of sale) of the material in its first marketable state should be used.

20. QUESTION: What is the 50-mile limit on transportation in connection with percentage depletion?

ANSWER: Section 114 of the Internal Revenue Code as amended by the Revenue Act of 1950 specifically provides that the cost of transportation from a mine to a processing plant within 50 miles where the ordinary treatment processes are applied may be included in gross income from the property. The Secretary of the Treasury may permit the inclusion of transportation costs beyond 50 miles in specific cases if he finds that the physical or other requirements are such that the mineral must be transported a greater distance for the ordinary treatment processes. Any transportation costs incurred after the product reaches a marketable state would have to be eliminated from gross income for the purpose of computing percentage depletion.

21. QUESTION: Does percentage depletion take the place of cost depletion, or can it be taken in addition to cost depletion?

ANSWER: The depletion allowance taken by a producer who is entitled to use percentage depletion is the higher of a cost depletion deduction or a percentage depletion deduction. Both may not be taken.

There is no election involved. The law provides that a taxpayer who qualifies shall take the higher of the two deductions each year, and if he fails to do so, the basis of the depletable asset will be reduced by the amount of the higher of the two deductions for each year. This is true even though the increased deduction will not benefit the taxpayer because he has a year of low profits or losses.

22. QUESTION: How does a taxpayer take the depletion deduction on the tax return?

ANSWER: The percentage depletion allowance, while not actually an item of cost because it may bear little or no relation to the actual cost of the depletable asset, is in the nature of a cost. It is taken as a deduction in computing taxable income and does not operate to reduce the tax directly.

23. QUESTION: What records must be kept in connection with percentage depletion?

ANSWER: In general, a taxpayer's regular accounting records will probably suffice to furnish most of the information needed in connection with percentage depletion. However, records should be kept which will facilitate furnishing information required under Section 29.23(m)-13 of Regulations III. This section provides that the following information shall be attached to the return of every taxpayer who claims a percentage depletion allowance:

(1) Data necessary for determination of "gross income from the property" as defined in Section 29.23(m)-1(f), including amounts paid to lessors as rents or royalties, the amounts paid to holders of other interests in the mineral property, and the price per unit at which royalties were paid.

(2) Data necessary for the determination of "net income of the taxpayer from the property" (computed without allowance for depletion) as defined in Section 29.23(m)-1(g).

(3) The name, description, location and identifying number, if any, of the property.

(4) The nature of the taxpayer's interest in the property, accompanied by a certified copy of the instrument or instruments by which it was acquired.

(5) The date of acquisition and, if under lease, the exact terms and date of the expiration of the lease.

(6) In the case of a taxpayer claiming a deduction for depletion in respect of (a) property in which he owns a fractional interest only, or (b) a leasehold, or (c) property subject to lease, there shall also be attached a statement setting forth the fraction of the gross production to which the taxpayer is entitled, the name and address and the precise nature of the holding of each person interested in the property, and (in the case of the lessor) whether the lease involved was still in effect at the close of the taxable year, and, if not, when it was terminated and for what reason, and whether the lessor repossessed the property. Any taxpayer who is the assignor of a lease with respect to any property, or the holder of an interest purporting to be an overriding royalty interest or of any interest other than that of a lessor or an operating lessee, and who claims depletion with respect to such property or interest, shall state the exact nature of the interest held and shall furnish a certified copy of the instrument or instruments by which it was acquired.

(7) In case it is necessary in the determining of gain or loss from the sale or other disposition of property during the taxable year, or if a valuation of the property is necessary for any purpose, the taxpayer will also be required to furnish other information called for in Section 29.23(m)-12 of Regulations III.

All of the foregoing information shall be furnished under oath, should be summarized and may be included in a single affidavit.

24. QUESTION: Will the Bureau of Internal Revenue issue new regulations to cover the products brought under the percentage depletion provisions by the Revenue Act of 1951?

ANSWER: Officials of the Bureau of Internal Revenue believe that new regulations will probably be issued, but not in time for use in filing returns for the calendar year 1951. The present prospect is that the regulations may be issued some time after March 15.

There seems to be a feeling both within and without the Bureau that specific regulations covering each industry entitled to use percentage depletion should be promulgated. However, until the thinking has crystallized in the Bureau, it is impossible to say what will be done in this respect.

If regulations are issued, they will be published in the *Federal Register* in proposed form, and interested taxpayers will be given 30 days within which to file any objections they may have.

personal mention

GEORGE C. WALTER, has retired as president and general manager of the Southern Cement Company, Birmingham, Ala., after approximately 50 years of service. He will remain with the firm in an advisory capacity. C. W. STREIT JR., former executive vice-president and sales manager, who has served the company since 1916, has succeeded Mr. Walter as president.

C. H. ELLISON JR., who has been assistant sales manager, was appointed general sales manager. DAVE H. SHEARER has been named sales manager of the company's Lime Division.

M. C. Hull

The following managerial promotions in the sales organization of the Universal Atlas Cement Company, New York, N. Y., have been announced by Fred T. Wiggins, vice-president and general sales manager of the company: MAC H. HULL, former assistant to vice-president, and JAMES C. MCCLURE, former sales manager of the company's Dayton, O., territory, have been appointed assistant vice-presidents; DAVID H. DEACON, who formerly served as assistant sales manager, has been named sales manager.

Mr. Hull has been associated with Universal for 31 years, having joined the firm as correspondent at Birmingham in 1921. He served at Birmingham and at Waco, Tex., in various capacities in the sales department until 1938, when he became district sales manager at St. Louis. In 1940 he was appointed assistant to vice-president, sales, central region, Chicago, and in 1946 was advanced to the position of assistant to vice-president, general sales, New York.

J. C. McClure

D. H. Deacon

Mr. McClure, who came to Universal in 1927, served as technical service engineer in Ohio until 1935, when he was promoted to technical service manager at Pittsburgh. In 1938 he was appointed district sales manager at Albany, N. Y., and in 1946, sales manager at Dayton. He is a member of the Ohio Society of Professional Engineers and the American Concrete Institute.

Mr. Deacon joined the company in 1941 as clerk in the Albany, N. Y., sales office. He became a salesman at Albany in January, 1942, and two months later joined the U. S. Army Air Force. After his discharge from the service in 1946, he rejoined the company as sales representative in the Albany office. Six months later he was assigned to the Dayton office as sales representative. He was appointed assistant sales manager at Dayton in 1949.

R. M. EASTWOOD, of the Eastwood Sand and Gravel Company, Grayville, Ill., has been elected president of the Grayville Chamber of Commerce.

W. N. FRY, president of the Fischer Lime and Cement Company and vice-president of the Concrete Products Corporation of Memphis, Tenn., and head of the Greenville Sand and Gravel Company, Greenville, Tenn., has been appointed a director of the First National Bank of Memphis.

MELVIN H. BAKER, chairman of the board of the National Gypsum Company, Buffalo, N. Y., has accepted the Advertising Council's invitation to serve on the Industries Advisory Committee for its public service advertising campaigns.

CLARENCE F. CAMPBELL, office manager of Anna Quarries, Inc., Anna, Ill., was re-elected to head the activities of the Anna-Jonesboro Chamber of Commerce at a meeting of the executive board on January 7.

E. W. CAREY has announced his resignation as vice-president and director of personnel of the United States Gypsum Company, Chicago. Mr. Carey was appointed director of personnel in 1948, and was elected a vice-president a year later. Prior to his appointment as personnel director he held the positions of credit manager and controller for the company.

National Gypsum Company's Southeastern Division, has opened a new Jacksonville District, with F. E. REMBERT in charge as district sales manager and MELVIN H. BAKER JR. assistant district sales manager.

Mr. Rembert, who was previously a territory salesman and assistant district manager, has been with National Gypsum for ten years. Prior to this promotion, he served as assistant sales manager in the Atlanta District. Mr. Baker has been a salesman in the Tampa territory.

JOHN W. ROCKWOOD, formerly manager of building sales, has been appointed general manager of the Kelley Island Lime and Transport Company, Cleveland, O.

DONALD W. TAIT has been appointed advertising manager for the Perlite Division of Great Lakes Carbon Corporation. Mr. Tait will be in charge of all advertising matters concerning Permalite plaster and concrete aggregates, Strata-Seal, Strata-Crete and other perlite products.

JAMES BOYD, former director of the U. S. Bureau of Mines, has been appointed exploration manager of the Kennecott Copper Corporation, New York, N. Y., according to an announcement by Anton Gray, Kennecott president.

MARTIN WEIL has retired as treasurer of the International Minerals and Chemical Corporation, Chicago, after more than 40 years of service. International Minerals also announces the following appointments: THEODORE GRUEN has been named general manager of the scrap metal department; FREDERICK R. JEFFREY was assigned as manager of the ore department; and H. FRED BAERWALD was named assistant to the president.

GAIL HAMILTON has been promoted to sales manager of the Ash Grove Lime and Portland Cement Company, Kansas City, Mo., according to an annoucement by Purd B. Wright, general sales manager of the company. Mr. Hamilton previously served as a contract representative, a territory salesman in Northwest Missouri, and assistant sales manager.

G. V. ARNOLD has been promoted to the position of district sales manager of the National Gypsum Company's Atlanta district. Mr. Arnold, who formerly served as assistant district sales manager in Atlanta, succeeds William H. Pulley, division manager of National's Southeastern Division.

obituaries

ROBERT DOUGLAS BAKER, chairman of the board of the Peerless Cement Corporation, and inventor of several types of automatic roadbuilding machinery, died of a heart attack at Fort Lauderdale, Fla., on December 4.

Believed to be the first man to construct a modern concrete highway, Mr. Baker laid the first mile of modern concrete highway in 1909 in Detroit, Mich. It was the stretch on Woodward between Six and Seven Mile Roads. At that time there was great opposition to the experiment.

Mr. Baker formerly headed the R. D. Baker Company, a roadbuilding firm, and the Michigan Asphalt Paving Company. He was 80 years of age.

OTTO J. ELLINGEN, president of Conco Building Products, Inc., Mendota, Ill., died suddenly in Mendota on November 8. He was president also of Conco-Meier Corporation, brick manufacturers, and a vice-president of H. D. Conkey & Company, with whom he had been associated for more than 40 years.

Mr. Ellingen was active in both sales and production in the two building materials firms which he headed, and was widely known in the building field.

Orson A. Hull, who was works manager of Minnesota Mining and Manufacturing, St. Paul, Minn., until his retirement in 1930, died of a heart attack on a train at Kansas City, Mo. While serving as plant superintendent for 3M, Mr. Hull supervised the moving of the 3M plant from Duluth to St. Paul in 1910.

Mr. Hull went to work as a young man for the Carborundum Company at Niagara Falls, N. Y. When that company opened its Duluth plant, later to become Minnesota Mining & Manufacturing Co., Mr. Hull was transferred to this plant. He was 75 years old.

Raymond Harold Clark, 48, president of the Oakridge Sand Company and also of the R. H. Clark Equipment Company, died on November 24 in a Lakeland, Fla., hospital after an extended illness.

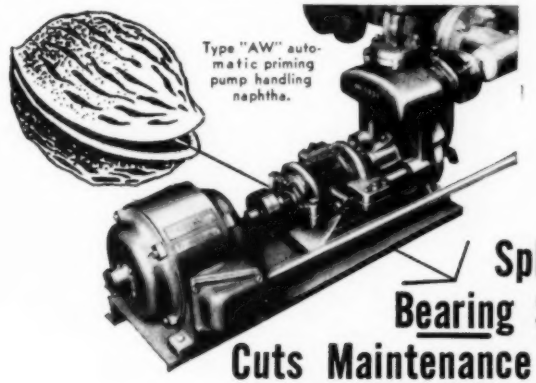
CHARLES STEVENS, former employee at the Lehigh Portland Cement Company's Mitchell, Ind., plant, died on December 17 of a heart attack at his home in Rabbitville, Ind.

GEORGE S. COURTER, 53, superintendent of the Pequannock, N. J., plant of the Samuel Braen Sand and Gravel Company, Wyckoff, N. J., died on January 18 at his home after a heart attack.

CLARENCE E. KLAUS, 61, former superintendent at the Columbia Quarry Company, St. Louis, Mo., died at a St. Louis hospital on December 12 following an extended illness.

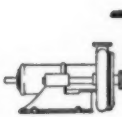
ALEXANDER ANDERSON, former vice-president of the Georgia Marble Company, Tate, Ga., and general manager of the company's Nelson, Ga., plant until his retirement, died unexpectedly at his home on December 10.

WILFORD S. TRUEBLOOD, 73, who had served for many years as production superintendent of the Monolith Portland Cement Company, Los Angeles, Calif., died on December 8 at his home. He had been connected with the cement industry since early youth, and had been employed with many of the leading cement concerns of the West as chemist, engineer, and production head.



Split Bearing Stand Cuts Maintenance Cost of NAGLE PUMPS

Just unscrew (or cut off with a torch if necessary) four nuts on each side and the top half of the bearing stand lifts off exposing the bearings. Merely loosen one nut on each side to release tubular supports, for slippage seal adjustment. Instant "thumb & forefinger" packing gland adjustment. Impellers, plates or casings changed in a jiffy. These and other features cut maintenance costs to the bone. That is why Nagle Pumps are preferred for the really tough pumping jobs. Also vertical shaft pumps for pumping abrasive or corrosive materials.



Nagle Pumps, Inc.

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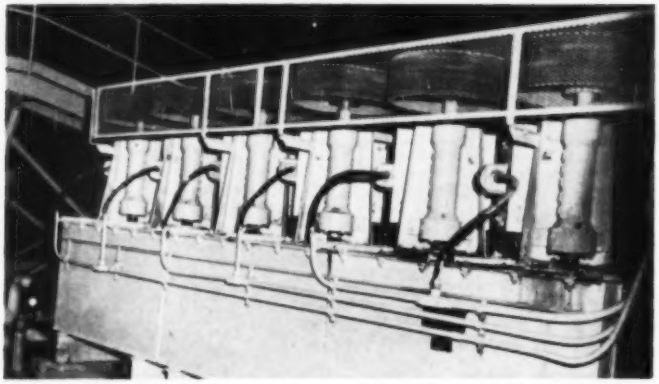
new machinery and supplies



● Attrition Machine

An attrition machine for the beneficiation of sand and gravel, dressing of ore, preparation of coal, and similar uses has been announced by the Western Machinery Company, 760 Folsom Street, San Francisco 7, Calif.

The new machine produces two major effects on the material treated—first, the removal of slime, oxidized and reagent coatings that are undesirable in further processing, and the cleansing and polishing action of the minerals treated; second, the liberation of cemented particles from the cementing materials, as in freeing sand from clay-cemented sandstone.

The Wemco attrition machine uses the principle of controlled turbulence of high-density pulps. The action simulates the rubbing of particle against particle. Selection of the optimum density of pulp is of great importance in operating the machine, and some of 83 percent solids are being used.

The machine consists of two, four, or six octagonal cells operating in series, and mounted on a common base. Each cell includes a motor-driven vertical impeller shaft on which are mounted three six-bladed impellers. Pitch of the impellers in each cell is alternated, so that in Cell No. 1, the top impeller throws the pulp downward, the middle impeller throws the pulp upward and the bottom impeller throws the pulp downward. Rotation is clockwise, and the pulp passes from Cell No. 1 to Cell No. 2 through an opening near the bottom of the partition between the cells. In Cell No. 2 the impeller pitches and rotation is the opposite to Cell No. 1, and the pulp flow to Cell No. 3 is through an opening near the top of the partition between the cells.

● Tractor-Drawn Scraper

A new scraper with a struck capacity of 21 cu. yd. and a heaped capacity of 27 cu. yd. has been announced by the Caterpillar Tractor Company, Peoria 8, Illinois.

The new machine, the "No. 90" scraper, can be used with side boards to increase the capacity to 25½ cu. yd. struck, or 31 cu. yd. heaped. The scraper has a hard-surfaced reversible cutting edge loading into a flat, double-bottom bowl of high-tensile steel. Operation is by cable from a cable-control unit which may be mounted on the tractor to provide for positive loading and ejecting.

The axles run on tapered roller bearings. Tires are 24.00-29 front and 27.00-33 rear. 24-ply rating.

● Anchor Bolts

A line of fastening devices for masonry use is manufactured by the Super-Grip Anchor Bolt Company, Philadelphia 40, Pa.

Some of the items included in the line are anchors, extension sleeve anchors, anchor bolts, double anchor bolts, hook bolts, loop bolts, eye bolts, and refractory anchors.

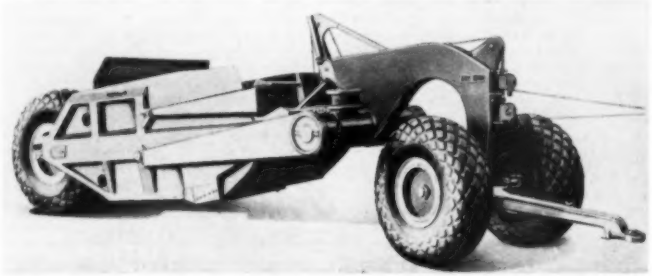
Super-Grip products are said to give 50 percent greater anchoring power and to remain in the masonry up to the point of failure of the masonry or of the bolt or screw used. Many sizes and shapes in several kinds of metals are available for standard or special applications.

● Blasting Meter

A blasting meter that combines voltmeter, ammeter, and blasting galvanometer in a handy size for field use is now being marketed.

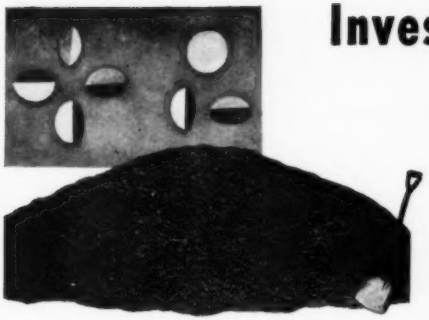
The instrument, which is called the "V.A.O." blasting meter, contains the necessary electrical components for checking stray currents and voltages around blasting operations. A rectifier is included, so that either alternating or direct currents may be detected. It can be used as a blasting galvanometer for checking the circuit of individual electric detonators or detonators connected in series.

The instrument is built by Roller-Smith Company, Bethlehem, Pa., and embodies design features suggested by explosives engineers of the Hercules Powder Company, Wilmington, Del.



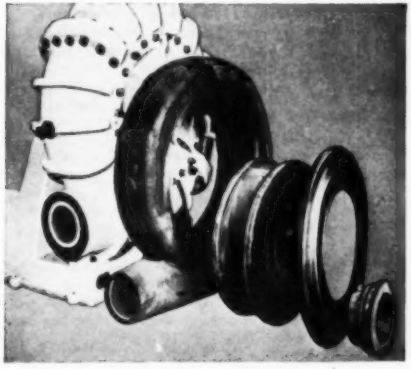
Investigate NI-HARD for your

ABRASION PROBLEMS



SEE FOR YOURSELF why NI-HARD cuts grinding costs. Unlike other cast irons, NI-HARD comprises a multitude of hard carbides firmly embedded in a matrix which is as hard as fully hardened steel. Ni-Hard balls are produced in sizes from ⅝" to 1¼". Balls at left above are sectioned to show soundness.

THESE BALL MILL LINERS of chilled NI-HARD replace rolled steel liners for milling ores. The user previously used all types of liner materials, including manganese steel, chilled iron, etc., before standardizing on NI-HARD.



SOLIDS-HANDLING PUMP PARTS, produced to take full advantage of NI-HARD, include impellers, shell liners, suction side liners, engine side liners, throat and seal rings.

NI-HARD is produced by authorized foundries from coast to coast

Ni-Hard® . . . an abrasion-resisting nickel iron . . . has proved the answer to hundreds of problems involving severe abrasive wear. During the past 20 years it has set notable records for length of service, down-time saving and *ultimate economy* where wear-resistance is the primary requirement. A few typical Ni-Hard applications are illustrated.

At the present time, the bulk of the nickel produced is being diverted to defense. Through application to the appropriate authorities, nickel is obtainable for the production of NI-HARD for many end uses in defense and defense supporting industries. There are authorized foundries, from coast to coast, equipped to produce NI-HARD castings in all common forms and shapes.

SOURCES OF SUPPLY FOR NI-HARD CASTINGS

EASTERN SECTION . . .

Hardinge Manufacturing Co.
240 Arch Street
York, Pa.

Link-Belt Co., Olney Foundry
180 W. Duncannon Ave.
Philadelphia 20, Pa.

New Castle Foundry Co.
Mahoning Ave. & Hobart St.
New Castle, Pa.

The Pennebacker Co.
Emmaus, Pa.

Sprout, Waldron & Co., Inc.
Sherman St.
Muncy, Pa.

Treadwell Engineering Co.
Lenox & 25th Street
Easton, Pa.

Weatherly, Fdry. & Mfg. Co.
Commerce St.
Weatherly, Pa.

Georgia Iron Works Co.
605 12th St.
Augusta, Ga.

Pekor Iron Works, Inc.
P.O. Box 909
Columbus, Ga.

Thomas Foundries, Inc.
3800 10th Ave. No.
Birmingham 1, Ala.

CENTRAL SECTION . . .

Bassett Foundry Co.
Adrian, Mich.

Brake Shoe & Castings Div.
American Brake Shoe Co.
109 N. Wabash Ave.
Chicago 4, Ill.
(Plant: Melrose Park, Ill.)

Frank Foundries Corp.
2020 3rd Ave.
Moline, Ill.

Griffin Wheel Co.
445 North Sacramento Blvd.
Chicago 12, Ill.

Wells Manufacturing Co.
7800 N. Austin Avenue
Skokie, Ill.

Eagle Iron Works
129 Holcomb St.
Des Moines, Ia.

Keller Foundry Co.
1010 E. Jackson Ave.
Knoxville, Tenn.

Helmick Foundry-Machine Co.
8th St. & Belt Line
Fairmont, W. Va.

Arkansas Foundry Co.
1501 East Sixth St.
Little Rock, Ark.

WESTERN SECTION . . .

Eagle Foundry Co.
75 Horton St.
Seattle 4, Wash.

Union Iron Works
Box 2135
Spokane 2, Wash.

Pacific Ball Mfg. Co.
P.O. 106
Southgate, Calif.

Pacific Foundry Co., Ltd.
3100 19th St.
San Francisco, Calif.

Stanley Foundries
6009 Santa Fe Ave.
Huntington Park, Calif.

Capitol Foundry Co.
Phoenix, Arizona

Darbyshire Steel Co., Inc.
P.O. Box 352
El Paso, Tex.

Texaloy Foundry Co.
1407 Hoefgen
San Antonio 3, Tex.

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK 5, N. Y.

● Two-Cycle Diesel Engine

A two-cycle diesel engine that embodies several distinctive features is announced by the Lever Motors Corporation, P. O. Box 65, Charleston, Ill.

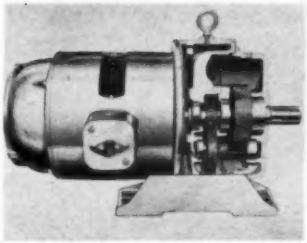
The engine is full-dieseled, blower aspirated, with a 16 to 1 compression ratio. Scavenging air is introduced to the cylinder through an intake valve at the top and exhausted through ports at the bottom. This is claimed to result in longer valve life and better cooling of the vital parts.

Differing from conventional engine design is the connecting rod. This is in two parts in this engine. The first is a shortened arm from the piston to a lever that is fastened at the opposite end to the engine block. A second arm transmits the power from the lever to the crankshaft. Greater power and shortened crankshaft travel are claimed for this design. At present the engine is built in a two-cylinder, 84-hp. model; others are planned.

● Fluid Coupling Gear Reducer

A gear reducer that incorporates an integral fluid coupling is being manufactured by the Reuland Electrical Company, Alhambra, Calif.

This reducer consists of a motor with a built-in fluid coupling that operates through a gear-train mounted in a common housing and base. The fluid coupling combined with the gear train converts the high speed of the motor into a slow speed high-torque output. The coupling provides cushioned starting of loads and provides protection against jamming of



equipment. It is suggested for use on cranes, conveyors, dryers, mixers, and other machinery requiring smooth acceleration at reduced speeds.

These fluid-coupled gear reducers may be obtained with single or polyphase motors, single- or double-reduction gears, drip-proof or totally enclosed frames, and in a wide range of output speeds and horsepower ratings. The gears operate in an oil bath and are made from special alloy steels.

● Wire Rope Lubricant

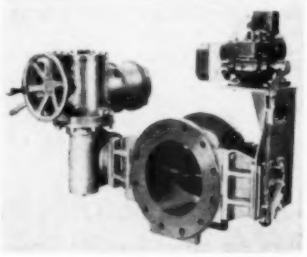
A wire rope lubricant that can be applied to wet wire rope has been perfected by The Texas Company, 135 E. 42nd Street, New York, N. Y.

The new lubricant, "Texaco Crater A," is said to be able to cling to dripping wet wire rope and to penetrate it. It is suggested for use on dredge lines, and cables subjected to severe weather conditions or abnormal water conditions. The material is a thin, watery liquid that is said not to drip or evaporate in hot weather, or to harden and chip in cold weather.

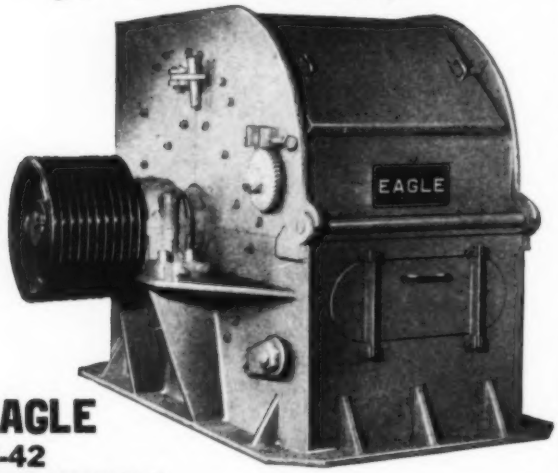
● Dual-Purpose Valve

A valve designed for a large volume with a low pressure drop or a small volume with a large pressure drop is being manufactured by the R-S Products Corporation, 4600 Germantown Avenue, Philadelphia 44, Pa.

These valves are available in various combinations of sizes and with manual or automatic control. They consist of an outer vane which seats against the body side wall and an inner vane in the center of the larger one. Each vane is operated independently by manual control or by a separate electric motor. It is virtually a valve within a valve. The "No. 818" illustrated has a 12-in. vane with a 4-in. vane mounted within it, both motor-controlled. Bronze bushings, lubricated stuffing boxes, and outboard bearings on the shafts are features of these valves.



DOES DOUBLE DUTY



The EAGLE 36-42 HAMMERMILL

Why buy both primary and secondary crushers when this carefully engineered, sturdily built Eagle will answer for both? Its fast flying, super-hard hammers chew right into all comers — anything that will enter the feeder opening. Turns out any size aggregate, according to the setting, from dust to 3" stone. Unsurpassed for ag-lime production.

Look at EAGLE before you buy!

Send for complete specifications, Folder 251-107

EAGLE

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PULVERIZERS • CONVEYORS • LOADERS

CRUSHER CO., Inc. GALION OHIO·U·S·A

More Information, Please

CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. Power-thrifty Products by Phillie Gear. This four-page folder serves as an introduction to the gear and other products made by the company. The firm's two plants are shown on the cover while the other three pages use illustrations to show the different lines such as gears of all types, MotoReducer, planetary speed reducers, worm gear speed reducers, herringbone speed reducers, spiral-bevel speed reducers, GearMotor, in-line helical speed reducers, cooling tower drives, couplings and LimiTorque valve control. Text is used to point out the main features of each line and to suggest the right bulletin for complete information and specifications on each line. Philadelphia Gear Works.

2. Denver-Dillon Vibrating Screens. Bulletin No. 53-B12. This catalog page combines ordering information, operating data, and dimensions for vibrating screens. Sizes from 1 by 3 ft. to 5 by 10 ft. are listed. Also shown are illustrations of other products—jaw crusher, vertical sand pump, rubber lined sand pump, and diaphragm pump. Denver Equipment Company.

3. Allis-Chalmers Grinding Mills. Bulletin 07B6718A. This 44-page bulletin contains a comprehensive collection of engineering data on grinding mills for the rock products, cement, chemical and mining industries. The well illustrated bulletin suggests points to consider when choosing a grinding mill, gives the basic design of the different types of mills, describes grinding circuits, and furnishes tables for use as a guide in mill selection along with closed and open circuit grindability indices. Six separate types of mills—rod, pebble, Ballpeb, ball, preliminator, and Compeb, are included along with data on parts, specifications, dimensions and capacities. Allis-Chalmers Manufacturing Company.

4. Merrick Automatic Weightometer; Feedoweight. Bulletin 851. The twelve pages of this bulletin cover several specific applications of automatic weighing and feeding equipment. Models are shown for feeding, proportioning, and weighing of raw materials or finished product. Among the applications shown are proportioning of feed to cement mills and lime kilns, control of conveyor feed to prevent overloading, automatic recording of fed or conveyed materials, ratio control of liquids to solids in processing, feeding of pulverized material possessing extreme fluidity, control of oversize lump material, and uniform loading of conveyors. Merrick Scale Manufacturing Company.

5. Farrell-Cheek Sprockets. Catalog No. 21. Eight of the twelve pages of this catalog are devoted to information on sprockets in tabular form. Number of teeth, pitch diameter, outside diameter, and the proper chain number for operation with the sprocket are given. The other pages illustrate styles of sprockets, hubs, and teeth forms. The materials used are explained such as Farrell's "85", Farrell's Hard Edge and carbon steel. Points to consider in ordering are given. Chains and conveyor buckets are mentioned on the back cover as other items of the company. Farrell-Cheek Steel Company.

6. The Pettibone Mulliken Companies. Form No. 1050. The twenty-four pages of this colorful bulletin are designed to acquaint the reader with the divisions and products of the Pettibone Mulliken Company and its subsidiaries. These companies are: Pettibone Mulliken Corporation which manufactures railway track materials, manganese steel castings, forgings, material handling buckets, bucket loaders, speedloaders, impact crushers, portable asphalt plants, and slurry and dredge pumps. Hammermills, Inc., which manufactures a complete line of hammermills for all types of crushing. The Johnston and Jennings Company which produces storage tank fittings. Cleveland Frog and Crossing Company which supplies railway track equipment. Universal Engineering Corporation which builds all types of crushers, pulverizers, and breakers, screens, scrubbers, feeders, grizzlies, conveyors, elevators, screw washers, log washers, stationary and portable plants for washing, crushing, screening and agstone plants. George Haiss Manufacturing Company which produces bucket loaders, conveyors, car unloaders, and buckets. Beardsley and Piper which has a complete line of foundry equipment. Illustrations show typical products and their application. Pettibone Mulliken Company.

7. Eveready Briksaw. This folder illustrates the features of the masonry cutting saw made by the company. Height of cutting head, foot control, blade pressure, head lock, and portability are covered by drawings and text. Types of materials that can be cut are shown and also the comparative cutting times. Blades are covered on the back page, with types and sizes listed and information about them given. Eveready Briksaw Company.

8. Kant Pull Out. Catalog No. 4. The trade-mark of the company is used as the title for this twenty-page catalog. The sixteen inside pages cover the line of anchors made by the company. Screw anchors, sleeve anchors, single anchor bolt, double anchor bolt, hook bolt, pipe bolt, eye bolt, and refractory anchors are some of the products covered. Photos and drawings illustrate the details and applications of the various types. Accessories for use in setting the anchors are shown. Tables give the sizes, weights, and other data on the different items. Super-Grip Anchor Bolt Company.

9. Hydro-Sheave Drive. Bulletin No. 148-B. This folder introduces a drive that contains a hydraulic coupling as an integral part of the unit. It is designed for immediate application to electric motors and gasoline or diesel engines in the ¾ to 40 hp. range. A cutaway view shows the construction of the Hydro-Sheave and the way in which power frfom the drive shaft is transmitted through the vanes of the fluid coupling to the sheave or sprocket. The value of the coupling in

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More Information, Please

reducing starting requirements of motors and in permitting selection of a motor or engine on the basis of running requirements is explained. Suggested applications such as conveyors, compressors, cranes, hoists, crushers, elevators and similar services are pointed out. Installation photos are included. Twin Disc Clutch Company, Hydraulic Division.

10. New Improved Manhattan Single Groove V-belts. Bulletin 6850 B. A small size folder that points out the advantages of the new belt design. A cutaway drawing shows the construction of the belt and explains the advantages of this type of construction. The text points out how the new design is improved and the value of the features in operation. Part of the folder gives the standard belt sizes and the old and new numbers of them. Manhattan Rubber Division, Raybestos-Manhattan.

11. Conveyor and Elevator Belting. This catalog contains all the necessary data for laying out or specifying a belt. Complete tables on carrying capacities, horsepower factors, pulley diameters, maximum and minimum plies for proper troughing and other engineering information are included. New York Belting and Packing Company.

12. Logan Industrial Wire Cloth. A mailing piece that shows some of the uses for wire cloth in rock screens, gravel screens, revolving screens and other applications. Text points out the features of the firm's wire cloth. The available meshes and sizes are shown in tabular form, and five popular sizes are illustrated actual size. Logan Company, Builders Iron Division.

13. Hardinge Products. Bulletin No. 100-A. This eight-page bulletin describes the company's complete line of process machinery for mining, chemical, stone, ceramics, mineral and other applications. The bulletin is divided into sections which are illustrated with photos or drawings. Text explains the main features of each kind of machine and refers to special bulletins on the same subject. The sections are: agitating-mixing; calcining; clarifying; classifying-separating; conveying; cooling; digesting; drying; flocculating; feeding; filtering; grinding-pulverizing; hydrating; sampling; scrubbing; thickening-concentrating-pumping; and miscellaneous. Hardinge Company.

14. Honeywell Composite Catalog. Catalog 5000. This 28-page illustrated catalog describes the principal instruments, control devices and related components manufactured by the Industrial Division of the company. Specifications of approximately 100 measuring and control instruments and valves are outlined. Some of the conditions which are measured or controlled are pH, flame failure, sheet moisture content, motion transmission, electrical variables, liquid level, conductivity, temperature, humidity, pressure, vacuum, speed, and flow. References to comprehensive catalogs are given. Minneapolis-Honeywell Regular Company.

15. Hydrocrane Model H-3. Bulletin H-3-1B. This twelve-page catalog describes and illustrates the completely hydraulic crane that is rated at 3 ton or ¾ cu. yd. capacity. The attachments that may be used such as crane, clamshell or magnet are illustrated. Drawings bring out the hydraulic action of boom telescope, boom hoist, load hoist, swing, and the individual setting of outriggers and power digging of the clamshell bucket, while the text points out the advantages of having hydraulic power handle these jobs. Application illustrations as well as details of the machine's construction are shown. Accessories are shown and described on one page of the catalog, while services and applications are listed on the back cover. Bucyrus-Erie Company.

16. Standard Electric Fans, Blowers. This 24-page catalog lists more than twenty different fans and blowers for a wide variety of uses—ventilating, exhausting, volume and pressure, in various styles and mountings. Sizes and dimensions, speed, horsepower needs, and air volume delivered are given for each style. Standard Electric.

17. Now You Can Unload Cars Easier, Faster, at Lower Cost. Bulletin 1530. This folder illustrates and describes the belt type of hopper car unloader produced by the company. The unloader is designed to handle any bulk material that can be shipped in hopper cars. It uses a belt with flights for positive movement of the material. Drawings, photos, and cutaway views show the important features of the machine which are also explained in the text. The back page illustrates some of the other products such as chain type unloaders, portable loaders, and belt conveyors. Lippman Engineering Works.

18. Dust and Fume Control. Catalog 72-B. This 36-page catalog describes the various sizes and models of "Dustube" (cloth-tube type) collectors and the advantages of cloth filtration. Assembled and knocked-down models with a wide range of air flow capacities and with various kinds of cloth—cotton, wool, and synthetics are described. Continuous automatic types which do not require shutting down during shaking of the filters are covered as well as others. Each description is accompanied by specifications, construction drawings, cut-away views and application photos of typical installations. American Wheelabrator and Equipment Corporation.

19. Equipment for Electrical Modernization of Cement Plants. GEA-5748. This 12-page bulletin points out the many ways in which electricity can be applied to improve operations in cement manufacturing plants. Six ways are pointed out, which are; 1. Move More Rock at Less Cost, which covers electrically driven shovels, hoists, conveyors, and locomotives. 2. Use High Output Pulverizers, driven by the proper electric motor. 3. Control Burning More Accurately, by using adjustable-speed drives and coordinating kiln rotation with kiln feed electronically. 4. Make More Efficient Use of Manpower, by centralizing and interlocking controls. 5. Cut Power Losses, Keep Machine Efficiency Up, with high-voltage power distribution. 6. Reduce Material Losses, with modern dust recovery systems. Available services to aid in modernizing cement plants are explained. General Electric.

20. Link-Belt Non-Clogging Spray Nozzles. Folder No. 2386. This folder illustrated the simple type spray nozzle that is easily installed and that requires no servicing to prevent clogging. Tables of sizes, capacities and installation photos are given. Link-Belt Company.

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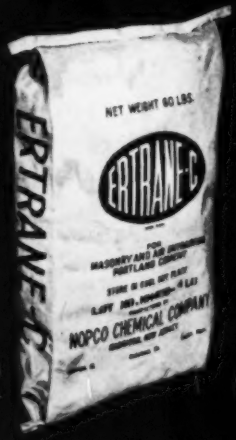

NOPCO ERTRANE* C

meets all requirements of

ASTM SPECIFICATION C226-50T

Nopco* Chemical Company—forty years in the business of supplying industry chemicals for numerous applications, and today selling $20,000,000 worth of chemical products—now offers its new, scientifically developed air-entraining agent, NOPCO ERTRANE C.

This agent has been subjected to a series of rigid tests by the fully qualified laboratory of E. L. Conwell & Co., Philadelphia, and has met all eight requirements of Specification C226-50T.

This means that—

Nopco Ertrane C is a fully accredited air-entraining agent for use in the manufacture of air-entraining cement made in conformance with ASTM SPECIFICATION C175-50T—the specification reflecting the current policy of Committee C-1.

The results of exhaustive tests have proved conclusively that air-entraining portland cement employing Nopco Ertrane C assures concrete of good strength and excellent durability. And look at these added advantages:

EASY, ECONOMICAL HANDLING—It is only necessary to add Ertrane C to water and stir until dissolved. No control testing required. Thus considerable savings in time and labor are realized at the mill.

IMPROVED PLASTICITY—Ertrane C not only provides excellent durability and plasticity (through air formation) but imparts qualities that *increase workability and placeability.*

IMPROVED WATER REPELLENCY AND STORAGE LIFE—Owing to its composition, Ertrane C gives *more water repellency* than straight resin soaps —helps to prevent cement from caking in storage.

GOOD COST PERFORMANCE RATIO—On a cost/performance basis, Ertrane C is the *most economical* air-entraining agent on the market.

Ertrane C is immediately available, in any quantity, from Nopco's plants at Harrison, N. J., Chicago, and Cedartown, Ga.

Profit by filling out the attached coupon and getting full information about Ertrane C—the new air-entraining agent that actually surpasses the requirements of ASTM Specification C226-50T by impressive margins in virtually every instance.

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Harrison, New Jersey

Gentlemen:

I am interested in learning more about Ertrane C. Will you kindly—

- ☐ send me further details—including full report of tests made by the E. L. Conwell Co. laboratories.
- ☐ have your representative call.

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Company_____

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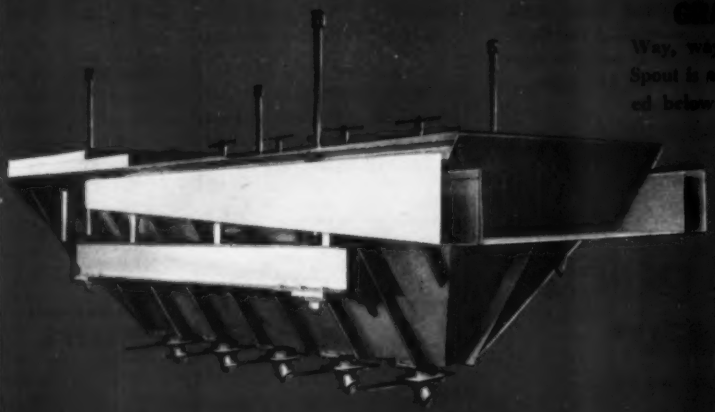
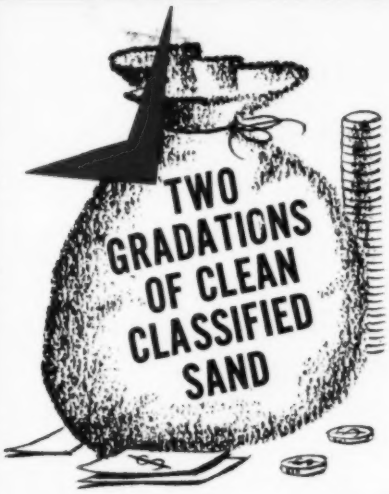
IT'S "IN THE BAG"



ROTATING SPOUTS CONTROL GRADATIONS WANTED

Way, way ahead in design the Rotating Spout is another Eagle "first." As illustrated below spouts can be turned to throw the material bled from any valve on tank to either screw unit, as desired.

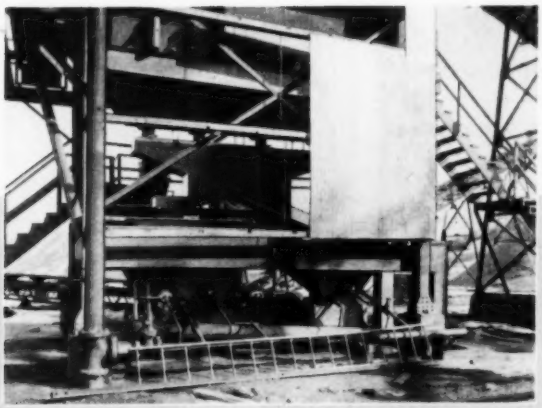
AT STANDARD SLAG!



STANDARD SLAG CO., Youngstown, Ohio, operates several sand and gravel plants using Eagle Washer - Classifier - Dehydrators. But, they are justly proud — and so are we — of their Mantua, Ohio, plant shown here.

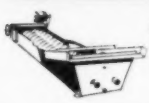
Wet screened fine material is fed to an Eagle Water Scalping Tank, equipped with automatic bleeding valves, which removes excess water, provides preliminary classification and retains desired volume of fines. Concentrated material is deposited in a dual collecting blending flume. Rotating spouts on bottom of scalping tank are adjusted so that coarse sand, which quickly precipitates at feed end, is spouted into one half of flume — fines which settle at far end are spouted to other half of flume — in desired proportion.

The coarser product is flumed to a 57" x 22' Eagle Double Screw unit where it is washed, further classified as desired and discharged onto conveyor dehydrated. The finer sand is flumed to a 29" x 22' single screw unit — two gradations of premium sand for a waiting market — an abundance of sand that meets the most rigid aggregate specifications! Send for the facts today!



Shown at left is tank, flume and feed end of screw units. Below: View of Standard Slag's plant. Output averages 110-ton per hour top grade material. Many successful Ohio operators use Eagle Fine and Coarse Material Washers, with Eagle Water Scalping Tanks as auxiliary equipment. Profit conscious operators are cashing in on Eagle's experience and "tell how."

EAGLE IRON WORKS


Screw Washers

Log Washers

"Swintek" Dredge Ladders

Clay Crushers

Clay and Cinder Grinders

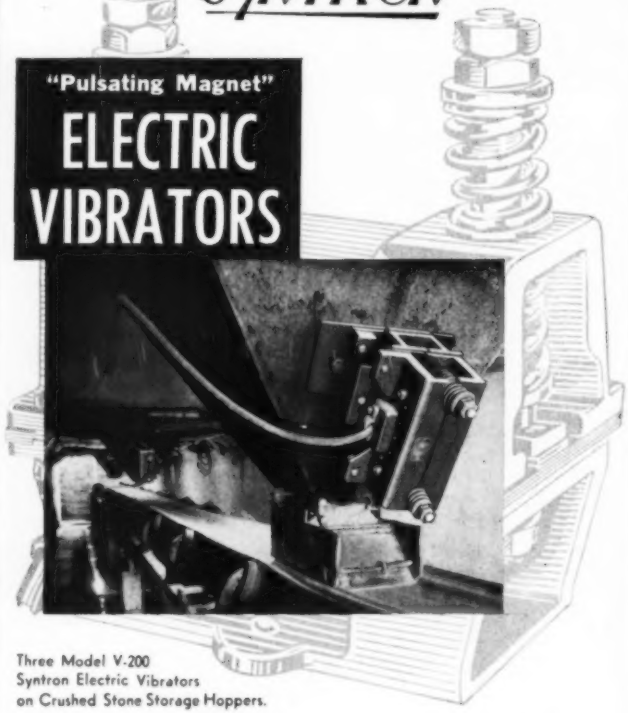
Shale Planers

Coal Crackers

SYNTRON

"Pulsating Magnet"

ELECTRIC VIBRATORS



Three Model V-200
Syntron Electric Vibrators
on Crushed Stone Storage Hoppers.

For smoother material flow with no unscheduled stoppages due to material arching and plugging in bins, hoppers and chutes . . . apply Syntron Electric Vibrators.

The right size Syntron Vibrator properly applied sets up a flow of high speed vibrations (3600 vib. per min.) that will cause the most stubborn and difficult material to flow freely, and that will move tons of inert weight.

Syntron Electric Vibrators will save their cost by eliminating damage to equipment by sledging and rodding . . . cutting down replacement costs.

The Vibrators are widely used on storage bins, hoppers and chutes for flowing materials ranging from fine powder to large chunks. Available in a variety of sizes . . . small models for little hoppers and large heavy-duty models for big bins and bunkers. Also available in a complete line of semi-noiseless models.

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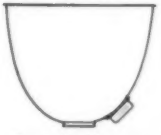
APPLICATIONS

Conical or Rectangular Hoppers



Parabolic Hoppers

Flat Bottom Bin with Center Discharge

Wooden Hoppers

Concrete Hoppers

Inclined Chutes

Hopper with Sloping Discharge

SYNTRON COMPANY

385 Carson Avenue Homer City, Penna.

● Outdoor Motor Control

An outdoor rain-tight motor control unit has been announced by the Westinghouse Electric Corporation, 306 Fourth Avenue, Pittsburgh 30, Pa.

The unit has a combination across-the-line starter with circuit breaker in

a rain-tight enclosure. A built-in start-stop pushbutton, reset button, and hand-off-auto selector switch are also rain-tight. The cover is sealed with a Neoprene gasket. These controls are built for standard voltages of 220 and 440, 60-cycle, but with proper coils they can handle up to 600 volts. These starters are designated as Class 11-206-NR and are made in NEMA sizes 1 through 5.

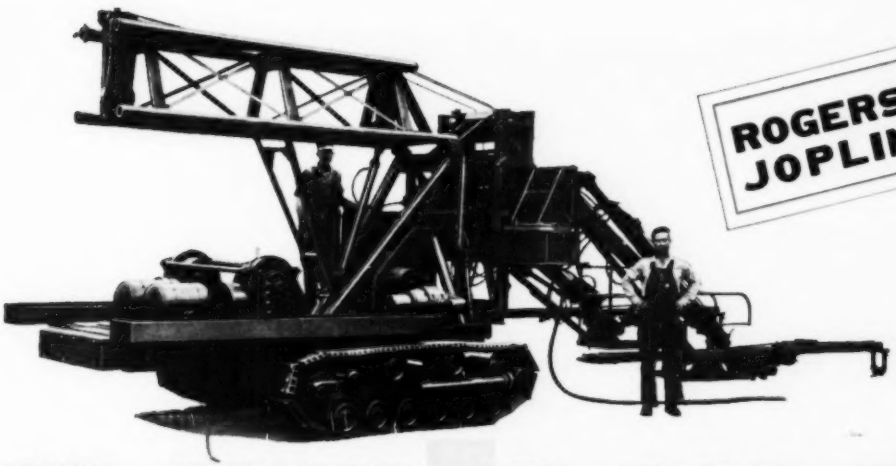
● Medium-Size Diesel Truck

A 2½-ton truck powered by a three-cylinder diesel engine has been announced by GMC Truck and Coach Division, General Motors Corporation, Pontiac 11, Mich. This model, which is rated at 110 hp., is claimed to be the first in this size field. It is available in five wheelbases for highway tractor or truck uses.

The "GMC D450-37" uses a three-cylinder two-cycle diesel engine that develops 110 hp. and is capable of speeds up to 54 m.p.h. The engine is a GM 3-71, which is a smaller version of the 4-71 and 6-71 series used in larger applications. The 3-71 has the same size pistons, bearings, injectors, cylinder liners, piston rings, connecting rods, and valves as the other 71 models. This reduces the number of parts needed where several sizes of diesel trucks are operated.

The truck features a two-speed axle which is electrically shifted to give a quick, positive control of speeds. The brakes are air-actuated-hydraulic, combining the power of air brakes with the feel of hydraulic systems.

This truck is expected to have the operating economy, durability, and extended life similar to that of the larger series of diesel trucks.



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ROGERS Jumbos were originally developed and proved in the underground zinc and lead mines of the Missouri-Kansas-Oklahoma district. The severe operating conditions, low cost mining, variety of underground operations and high production of these mines have demanded a jumbo of superior design, wide applicability and the utmost in reliability. Safety for the operator has been a carefully considered factor in design. For increased ECONOMY-PRODUCTION-SAFETY investigate the advantages offered by ROGERS for your operation.

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- Drag Scrapers
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- Rock and Ore Washers
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Yes . . . please send me your new bulletin on Jumbos

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WIRE SCREENS

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trade notes

The Varel Manufacturing Company, Dallas, Tex., recently moved into a new plant at 9230 Denton Drive. The plant has 33,000 sq. ft. of floor space and is operating on a 24-hour basis in making rock bits.

Frank B. Ungar has retired as sales manager for the Ludlow-Saylor Wire Company, St. Louis 19, Mo. Mr. Ungar served for 52 years with the company and was one of its representatives at many conventions and meetings, including the N.S.G.A. and N.C.S.A.

Link-Belt Company has announced the appointment of William J. Brinkworth as representative, Distributor Sales, Southwestern Division, with headquarters at the company's plant in Houston, Tex.

Mr. Brinkworth has been field manager of oil field distributor sales and continues in this capacity but will now also supervise sales through the company's industrial distributors in the region.

H. H. Yeager

Harbison-Walker Refractories Company has announced the appointment of Harry H. Yeager as general superintendent of plant operations.

Mr. Yeager has been associated with Harbison-Walker, in the operating department, since 1905, and served until recently as general district superintendent, with headquarters in Pittsburgh, Pa.

The State Equipment Company, New York, recently moved into new showroom and shop. The building, which houses the Albany, N. Y., branch, features glass walls for the showroom and much of the shop. It is located on the Albany-Schenectady highway.

Heard Everywhere

INTRA-SET's *drilling economy*

Reports continue to come in on the drilling economies made possible by Intra-Set Steel. This tungsten carbide tipped steel speeds drilling—cuts bit costs—saves air and powder. Gauge sizes from 1⅛" up—cross bit or chisel types—lengths up to 12 feet. Years of successful operation. You owe it to your business to get the Intra-Set facts. Rock Bit Sales & Service Co., 2514 E. Cumberland St., Philadelphia 25, Pa.; 350 Depot St., Asheville, N. C.

CARBIDE ROK-BITS • INTRA-SET DRILL STEEL • LONG HOLE DRILLING TOOLS • HOLE SAVERS • ALL TYPES OF HOLLOW DRILL STEEL

ROCKBIT
SALES AND SERVICE CO.

R. P. Parshall

R. P. Parshall, former manager of the Milwaukee branch, Cummins Diesel Sales Corporation, is now regional manager, Southeastern Region, with headquarters at Atlanta, Georgia.

Mr. Parshall has been associated with Cummins Diesel Sales Corporation for the last five years, and for two years he has been manager of the Milwaukee branch.

Carson L. Ruyle has been appointed advertising manager of the Gardner-Denver Company, Quincy, Ill. Mr. Ruyle assumes the position formerly occupied by Lt. Damon P. Tunnicliff, who has been called to active service in the Navy. He has filled the position of advertising manager of Gardner-Denver for the last five years.

G. W. Ostrand

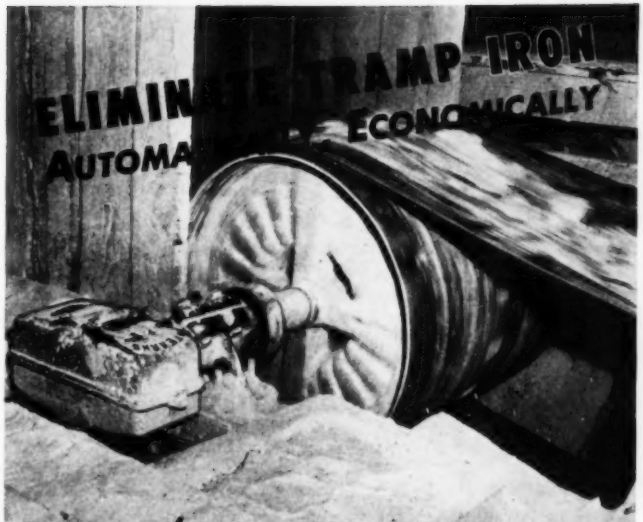
G. Walter Ostrand, general manager, Caldwell plant, Link-Belt Company, Chicago, Ill., was elected president of the Conveyor Equipment Manufacturers Association at the annual meeting at The Homestead, Hot Springs, Va. He succeeds L. B. McKnight, executive vice-president, Chain Belt Company, Milwaukee, Wis.

R. C. Sollenberger, who has been the staff head of the association since 1945, was re-elected executive vice-president. Other officers are as follows: Harry C. Davis, general manager and chairman of the board, Kanawha Manufacturing Company, Charleston, W. Va., vice-president; R. F. Tomlinson, general sales manager, A. B. Farquhar Company, York, Pa., treasurer; and Lee Sekulski, sales manager, Mathews Conveyor Company, Ellwood City, Pa., secretary.

The following were elected to the executive committee: J. A. Jeffrey, vice-president, Jeffrey Manufacturing Company, Columbus, O.; J. E. McBride, vice-president, Palmer-Bee Company, Detroit, Mich.; and Mr. McKnight.

Glen W. Maxon, president of the Associated General Contractors of America, recently published a letter which was sent to the chapters and branches of the association.

The letter calls attention to the poor safety showing of the construction industry and suggests that each member should take active steps to improve the safety program in his own operations, to forestall compulsory safety regulation by law, as well as to decrease the expenses that accidents entail.



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"pays for itself over and over"

HANDLING limestone for a large mid-western producer, this STEARNS Electro-Magnetic Pulley protects the reduction crushers by removing all tramp iron automatically, economically. If you want to reduce shut-down time and keep repair charges to a minimum — install a STEARNS Magnetic Pulley. It's the only economical and effective insurance against the tramp iron nuisance.

Whether your problem is the fairly simple job of tramp iron removal or the concentration and beneficiation of complex ores, STEARNS has EXPERIENCE ENGINEERED equipment to meet your specifications.

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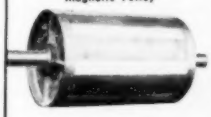
ALL SIZES, ALL TYPES TO FIT YOUR NEEDS

Years of research and development by STEARNS engineers have produced an outstanding product in magnetic pulleys — the reason for the wide acceptance in all industries for removing tramp iron, for separation and reclamation of materials. For complete specifications and operating data, write for literature.

STEARNS Permanent Magnetic Pulley



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Foremost in the Magnetic Field

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...You'll find two important differences! Because LODOVER overhead loading eliminates 2 full turns in every loading cycle, you get —

1. An average of approximately 50% more yardage moved per working day.
2. Lower maintenance cost due to less wear on crawlers, clutches, transmission and 9 other points.

That's why LODOVER operation means extra profits for you on every job!

Write for booklet "How to Increase Tractor-Shovel Production, Decrease Tractor-Shovel Maintenance."

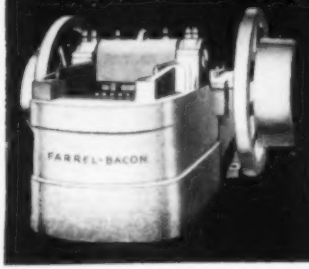
ELIMINATES 1200 TURNS
(In a normal 8 hour shift)

1 yard Combination Overhead and Front End Shovel for INTERNATIONAL CRAWLER TRACTORS

MANUFACTURING DIVISION
SERVICE SUPPLY CORPORATION
2006 ERIE AVENUE, PHILADELPHIA, PENNSYLVANIA

LODOVER Sold by Your INTERNATIONAL HARVESTER INDUSTRIAL POWER DISTRIBUTOR

COMPLETE CRUSHING PLANTS
designed and equipped by FARREL-BACON



Farrel-Bacon provides a complete engineering service, including design of plant and supplying all equipment from primary crusher to bin gate. Jaw-type crushers are available in sizes from 60" x 48" to 10" x 7". Write for complete information.

FARREL-BACON
ANSONIA, CONNECTICUT

The Pangborn Corp., Hagerstown, Md., recently honored 77 veteran employees at the first annual dinner of the Pangborn Quarter-Century Club. These men, many with more than 25 years' service, were awarded gold wrist watches and commended by company officials and employees alike for their part in the firm's success.

Robert E. Cook, field engineer with The Timken Roller Bearing Company's Cleveland office, has been named to the position of sales engineer of the Steel and Tube Division of the Company.

Mr. Cook, who has been representing the graphitic tool steel line will represent all products of the Steel and Tube Division.

The Kirk & Blum Manufacturing Company, fabricator and erector of dust-collecting and fume-removal systems, recently announced the completion of the primary phase of an extensive modernization of plant facilities.

The plant, which can accommodate further enlargement easily, is a one-floor plan brick structure that contains approximately 120,000 sq. ft. Facilities include an exterior and interior rail siding, overhead crane handling systems throughout, and other features.

Caterpillar Tractor Co. has announced an expansion program that will include a new factory in York, Pa., extensive additions to the Joliet, Ill., plant, and some improvements in the Peoria, Ill., plant.

The York plant will be built on a site of approximately 180 acres just outside the city limits and will cover about 360,000 sq. ft. of floor area. About 1,000 persons will be employed.

Major additions to the Joliet plant will be a 230,000 sq. ft. extension to the present manufacturing building, a separate parts building covering 280,000 sq. ft., and an addition to the heating plant. Over 1,900 people are already employed at Joliet, and this number will be increased to over 3,000 next year.

Changes in the Fairbanks-Morse sales organization which were announced recently are as follows:

J. A. Cuneo, formerly manager of the Chicago branch has been promoted to the position of general sales manager. Milo C. Roy, formerly manager of the Omaha branch, has been appointed manager of the Chicago branch. J. W. Wright, formerly manager of the Diesel Sales Division, has been appointed manager of the Omaha branch. C. E. Dietle, formerly diesel department manager of the Chicago branch, has been promoted to the position of manager of the Diesel Sales Division. W. B. Wylly, formerly manager of the Houston, Tex., subbranch, has been appointed manager of the Atlanta branch. L. A. Weom, formerly manager of the St. Louis branch, has been transferred to St. Paul, where he has taken over the duties of branch manager, succeeding A. C. Thompson, who has retired after 45 years of service. Clifford J. Shroeer, formerly diesel de-

partment manager of the St. Louis branch, has been promoted to manager of the St. Louis branch, succeeding L. A. Weom.

Mr. Morse also announced autonomous operation of the company's Electrical and Scale divisions, with the following changes:

Gordon R. Anderson, manager of the Freeport works, has been promoted to the position of general manager of the Electrical Division. George C. Worthley, manager of the Scale Division, has been promoted to general manager, and Joe Peterson to sales manager of the division. W. H. Kingsley is sales manager of this division.

Norman M. Godfrey has been appointed manager of the Eastern Sales Division of Hewitt-Robins Incorporated. Mr. Godfrey will supervise the sales of Hewitt Rubber and Robins Conveyors Division products in their Boston, New York, Philadelphia, Pittsburgh, and Charleston districts.

G. V. Migula has joined Hewitt-Robins Incorporated as manager of the Western Sales Division, with headquarters at San Francisco, Calif. He replaces J. H. Hayden, who is retiring but will continue to serve in an advisory capacity.

For several years, Migula and Company has acted as West Coast agent for Hewitt-Robins in the engineering and sale of its products, including conveyor belting and machinery and vibrating equipment. Hewitt-Robins will take over the assets of the Migula company, as well as some of its personnel.

Marion D. Austin, with Hewitt-Robins since 1947, will also join the Western Sales Division as district manager of the Rubber Division. Prior to the new appointment, he was manager of hose sales and development.

K. L. Way, who has been in the products sales department for 23 years, will take over Mr. Austin's position as manager of hose sales and development.

The appointment of H. F. Robertson as Comptroller of Quaker Rubber Corporation, Division of H. K. Porter Company, Inc., Philadelphia, Pennsylvania, was announced recently. Mr. Robertson will be in complete charge of all accounting and auditing for the company. He has been with the Porter company for the last two years, assisting the treasurer.

The Euclid Road Machinery Company has established a new sales and service branch at 339 West Maple St., Monrovia, Calif. A. E. Sorensen, formerly manager of the branch at Emeryville, Calif., is manager of the new branch. Paul Hoffman is office and parts manager, and B. J. Conway is in charge of service.

P. A. McDonald succeeds Mr. Sorensen as manager of the branch at Emeryville. He has been transferred from Minneapolis, Minn., where he was district manager since 1949.

W. P. Sutherland has been appointed district manager for the territory previously covered by Mr. McDonald. He was assistant to the domestic sales manager.

New "Packaged Unit" designed for aggregates, coal, coke, ores and other bulk materials

Equally applicable for both small or large scale operations, the new Hewitt-Robins Sectional Belt Conveyor is a packaged unit that can be assembled by your own workmen—and in considerably less time than required for conventional type conveyors.

From the variety of truss sections, head sections and A-frame supports you can select a conveyor system suited to your needs—in length, height, belt width and capacity. And, when you change locations, the conveyor can be disassembled, with sections added or dropped to suit conditions at the new site.

Like all Hewitt-Robins machinery, this new Sectional Belt Conveyor is carefully designed, strongly constructed. It is equipped with world-famous Robins Troughing and Return Idlers with one-shot lubrication. Curved decking protects the return strand of the belt.

And remember, only Hewitt-Robins is able to take single, unified responsibility for a successful Belt Conveyor installation—machinery and belting. For complete information on the new Hewitt-Robins Sectional Belt Conveyor, write today for Bulletin No. 132. Address Robins Conveyors Division, 270 Passaic Avenue, Passaic, N. J.

* * *

HEWITT-ROBINS SECTIONAL BELT CONVEYOR HEAD SECTIONS—3 types of drives to take motors from 2 hp to over 40 hp. Terminal pulleys (both head and tail) are solid welded steel with cast iron hubs.

TRUSS SECTIONS—2 designs—24" deep in lengths of 6'6", 15'6", 18'6", and 21'6"; 42" deep for greater spans. Side members all-welded construction; diagonal bracing members have jig-drilled holes for quick field assembly.

BENT SUPPORTS—A-frames are available in complete range from 4' to 50' deep—easily erected.

BELT WIDTHS—18", 24", 30" and 36". Lengths up to belt limitation.

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BELT CONVEYORS

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BELT CONVEYORS (*belting and machinery*) • BELT AND BUCKET ELEVATORS • CAR SHAKEOUTS
DEWATERIZERS • FEEDERS • FOAM RUBBER PRODUCTS • FOUNDRY SHAKEOUTS
INDUSTRIAL HOSE • MINE CONVEYORS • MOLDED RUBBER GOODS
RUBBERLOKT ROTARY WIRE BRUSHES • SCREEN CLOTH • SKIP HOISTS • STACKERS
TRANSMISSION BELTING • VIBRATING CONVEYORS, FEEDERS AND SCREENS

William M. Black was recently appointed president, and Joseph L. Mullin vice-president, of Electro-Alloys Division, American Brake Shoe Company. Walter G. Hoffman, fomerly president of Electro-Alloys Division was appointed assistant to the vice-president for research and development of American Brake Shoe.

Mr. Black is a vice-president of American Brake Shoe and also president of the American Manganese Steel Division of the company.

Mr. Mullin is vice-president in charge of operations for American Manganese Steel Division, and will continue in that capacity.

Mr. Hoffman will be assigned to special metallurgical development projects at the company's Research Center in Mahwah, N. J.

William H. Myers has been named general district superintendent in charge of six plants of the Harbison-Walker Refractories Company, and J. H. Moore Jr. is general district superintendent in charge of coke oven manufacture.

Charles W. Avers has been appointed superintendent of the company's new Windham, O., silica plant, and William N. Bartleson will be superintendent of the plant at Warm Springs, Calif.

J. J. Merkel has been appointed branch manager of the Detroit district of the Quaker Rubber Corporation, a division of H. K. Porter Company, Inc. Concurrently, E. E. Klemm was named branch manager of the Cleveland district. Both men will assist their respective district managers in the operation of sales offices and warehouses.

Appointment of Donald C. Howard as factory representative for the New York Belting and Packing Company in California, Nevada, and southern Oregon has been announced.

P. J. Fleming

Pierce J. Fleming, manager of Mack Motor Truck Corporation, off-highway sales division, has been elected a vice-president of the company, it was announced recently.

Mr. Fleming joined Mack in 1918 and served as district manager in Buffalo, Cincinnati, and St. Paul. He was transferred from that position in 1949 to take up his present duties.

Gene Thomas

Gene Thomas has been appointed district representative of The Frank G. Hough Co., Libertyville, Ill., for the sales district covering the states of Washington, Oregon, Idaho, Montana, and Wyoming. He will work with the Hough distributors in these states in the application of tractor-shovels to the contracting, public works, logging, mining and industrial fields.

Mr. Thomas has been with the Hough organization for 18 months training for his new duties, and is an engineering graduate of the University of Illinois and a Marine veteran from the Pacific theatre during World War II.

George O. Wherley, general credit manager of The Timken Roller Bearing Company, has been named president of the Motor & Equipment Manufacturers Association. The announcement was made following the semi-annual meeting of the association at the Drake Hotel, Chicago, in December.

Two 16 mm. color sound films have been released by The Euclid Road Machinery Co. and are available for showing to interested groups. "More Power to You", a 10-minute film, shows a Twin Power Scraper at work on stockpiling and reclamation.

"What's Behind the Euclid Name?" is a 20-minute film that shows the development of Euclid earth-moving equipment from the early days to the present. It also shows some "behind the scenes" views of the Euclid plant and manufacturing processes, and job applications of several different types of Euclid equipment.

Either or both films are available on a loan basis through Euclid distributors or by writing the Sales Development Department, Cleveland 17, O.

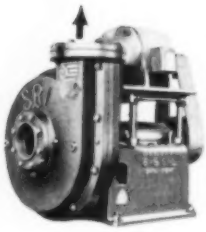
Denver "Sub-A" Flotation

Denver Cross-Flow Classifiers

Denver Hydroclassifiers

Denver Super-Agitator and Conditioners

Lower Cost Pumping IS possible with DENVER SRL... Rubber Lined Pump



Here's Why...

Power cost is 30% to 70% *less* than for other sand pumps on similar service. *REASON:* greater hydraulic efficiency resulting from simple design, rubber parts and lighter weight. Accuracy of rubber parts results in 1½ to 3 times greater efficiency than other sand pumps.

Learn More About Actual Savings

If you pump -¼" abrasives, describe your pumping requirements. Let us study and report specific advantages of Denver SRL Pumps over pumps you now use. Write Today!

Denver Disc Filters

Denver Pulp Distributor

Examples of DENVER SRL Rubber Lined Pump Curves*

Size	Gals. of water per minute		20' head	40' head	60' head	80' head	100' head
2" x2" SRL	50	RPM	838	1090	1320	1525	
		HP	60	1.5	2.8	3.2	
3" x3" SRL	100	RPM	760	1053	1303	1453	
		HP	1.1	1.9	3.4	4.3	
5" x5" SRL	300	RPM	590	800	956	1087	
		HP	2.4	5.4	8.3	11.5	
6" x6" SRL	1000	RPM		862	1005	1122	
		HP		14.4	22.6	30.0	
3" x3" SRL C	150	RPM	870	1145	1385	1580	1745
		HP	1.5	3.2	5.3	7.2	9.6
5" x4" SRL C	350	RPM	655	850	1020	1160	1280
		HP	2.9	5.4	8.3	11.4	14.5
8" x6" SRL C	800	RPM	500	655	780	890	980
		HP	5.7	11.6	16.8	22.3	28.6
10" x8" SRL C	2000	RPM	485	610	710	800	855
		HP	14.0	27.8	41.2	56.3	71.6

(*Multiply these horsepower ratings by the specific gravity of your pulp to determine actual break horsepower required.)

Denver Thickeners

Denver Reagent Feeders

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legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

During the last few months the higher courts in different states decided many unusually important decisions affecting buyers, sellers, and manufacturers of nonmetallic products. We shall briefly review these outstanding law suits in view of assisting readers to avoid a similar expensive and time-consuming legal controversy. Obviously these new higher court citations may be used advantageously by legal counsel to win unavoidable suits. Any reader who may desire to read the complete decision of any hereinafter briefly reviewed higher court law suit may do so at any good library, simply by identifying the selected case by reference to the citation.

No Deed Restriction

According to a late higher court decision, if a real property has no deed restriction, and no zoning ordinance restricts the property, the owner may use the property for any purpose.

For example, in *Sundown v. James*, 97 N. E. (2d) 235, these are the facts: A man named James in 1943 purchased a 61-acre farm on the east side of a city. In 1944 James filed for record a plat containing a few of the lots fronting on the highway. This plat contains restrictions as to use of these lots, the objects being to permit the lots to be used only for residential purposes. In 1950 James sold a 12-acre tract off the original 61 acres. The deed made no mention of other land sold off the original tract or any residential restrictions on lots or tracts already sold.

Several days after the deed was executed, the purchaser staked out the ramps and began pouring concrete for the footings for a plant. At this stage of operations the various home owners nearby filed suit and asked the court to grant an injunction against construction and operation of the plant on the contention that its operation would greatly annoy them, and further that deed restrictions for residents should apply to the complete 61-acre tract.

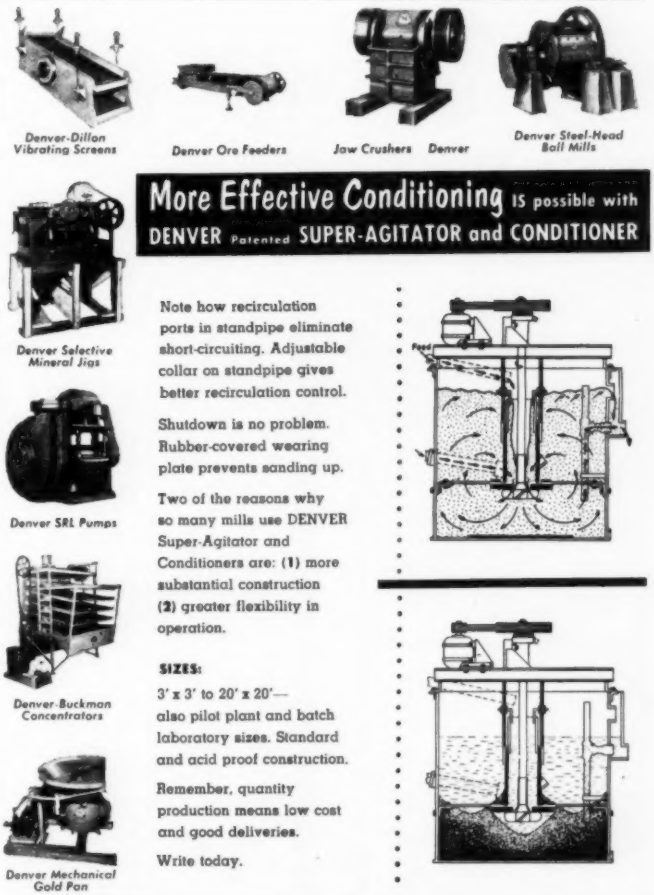
The lower court held that the operation of the plant would constitute a nuisance and that there was an implied covenant and agreement binding upon James not to use, lease, or sell the 12-acre tract for purposes other than residential.

The higher court refused to issue the injunction, and reversed the lower court, saying that James (seller of lots) was not bound, either in law or equity, to restrict the use of the 12-acre tract to residential purposes.

Defective Cinder Blocks

According to a late higher court decision, a seller of cinder or concrete blocks may be liable in damages if the blocks fail to meet tests of the American Society for Testing Materials.

For illustration, in *Gilger v. Montgomery Lumber Company*, 47 N. W. (2d) 281, one Gilger sued the Montgomery Lumber Company for damages, claiming that he purchased cinder blocks from the Montgomery Lumber Company for use in constructing basement walls, that Montgomery Lumber Company warranted the blocks to be of sufficient strength for the construction work for which they were purchased, and that the blocks were not of sufficient strength and were defective. The facts are that Gilger had purchased and moved to his property an old one-story house. The house weighed approximately 12 tons. Gilger excavated for the basement and employed a reputable mason to lay the blocks which he had purchased from Montgomery Lumber Company and which the latter had warranted to be of


Denver-Dillon Vibrating Screens
Denver Ore Feeders
Jaw Crushers Denver
Denver Steel-Head Ball Mills
More Effective Conditioning IS possible with
DENVER Patented SUPER-AGITATOR and CONDITIONER
Denver Selective Mineral Jigs
Denver SRL Pumps
Denver-Buckman Concentrators
Denver Mechanical Gold Pan
Note how recirculation ports in standpipe eliminate short-circuiting. Adjustable collar on standpipe gives better recirculation control.
Shutdown is no problem. Rubber-covered wearing plate prevents sanding up.
Two of the reasons why so many mills use DENVER Super-Agitator and Conditioners are: (1) more substantial construction (2) greater flexibility in operation.
SIZES:
3' x 3' to 20' x 20'— also pilot plant and batch laboratory sizes. Standard and acid proof construction.
Remember, quantity production means low cost and good deliveries.
Write today.
Feed
FLOTATION ENGINEERS
"The firm that makes its friends happier, healthier, and wealthier"
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protection for industrial workers

keep on the safe side

wear WILLSON GOGGLES

Like these sturdy welding goggles, all Willson safety equipment is made after careful study of industry's needs. Through this continuing research you get many comfort and safety improvements first in Willson products. Ask for Willson—largest line of goggles and helmets for gas and arc welding.

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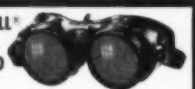

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CHIP-WELD GOGGLE No. DC53

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FLIP-FRONT HELMET No. 60S

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sufficient strength to support the house and serve as an adequate foundation. After the blocks were laid and a sufficient time had elapsed for mortar joints to cure, the house was moved on the foundation by an experienced housemover. All of the testimony is to the effect that the house fitted the foundation perfectly and that no difficulty was encountered in placing the house thereon. The following day the house had fallen into the basement. The west wall of the foundation and part of the north wall were still in place, but the south and east walls had collapsed. Gilger sent two of the blocks for testing. These blocks had an average test for compressive strength of only 265 p.s.i.

The higher court held the Montgomery Lumber Company liable in damages to Gilger, and said:

"The blocks were properly laid, the footings were sufficient, the house was placed squarely upon the foundation, and the work performed by people experienced in their trades. The condition of the blocks that failed was such that in our opinion it supports the essential finding of the jury that the failure was due to an insufficient strength of these blocks to carry the weight of this house. While blocks showing a compressive strength of 265 lbs., such blocks are below the standard required by the American Society for Testing Materials."

Testing Society

For the benefit of readers, it is well to explain that the American Society for Testing Materials is a recognized organization with members of manufacturers and users of materials. It is an organization which through its committees prepares specifications for materials and methods of testing materials to determine whether they meet the specifications. This Society has established two classes of cinder blocks, Class A and Class B. The Class A block is specified to be used in exterior walls below grade and for unprotected exterior walls above grade. The Class B block is a block to be used for other purposes. This Society requires that each Class A block has a compressive strength of at least 800 p.s.i. and a Class B block 700 p.s.i.

Mental Anguish

Whether or not a seller or manufacturer of defective concrete funeral vaults may be held liable in damages depends upon the peculiar circumstances. Generally speaking, the courts have held that "mental anguish" is an element of damages to be considered by the jury in an action for the breach of a contract to supply a water-proof concrete vault.

For example, in *Lamm v. Hunt Funeral Home*, 55 S. E. (2d) 810, the testimony showed that a woman named Lamm employed the Hunt Funeral Home to conduct the funeral and purchased a casket and vault for her deceased husband. The vault was composed of two sections; a concrete base on which the casket rested and a metal lid which fitted over the casket and locked to the base with ratchet locks at each end. Four

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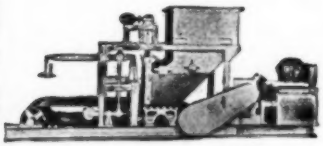

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months later Lamm discovered that the vault, during a very rainy spell of weather had risen above the level of the ground. Later it was discovered that water and mud had entered the vault and the casket was wet.

Lamm sued for heavy damages. Lamm testified that "seeing the vault out of the ground" caused her considerable shock and made her "extremely nervous" as a result of which she became a nervous wreck.

The lower court decided that Lamm could not recover damages for "mental anguish" unless she proved that the mud and water entered the casket through "unlawful, willful negligence and carelessness" of the Hunt Funeral Home or the manufacturer of the vault. The higher court reversed this decision, and said:

"Her mental concern, her sensibilities, and her solicitude were the prime considerations for the contract. It cannot be said, therefore, that such damages were not within the contemplation of the parties at the time the contract was made. This is essentially an action for damages for breach of contract. Any breach of the duty thus assumed was a breach of the duty imposed by the contract and not by law."

Law of Deceit

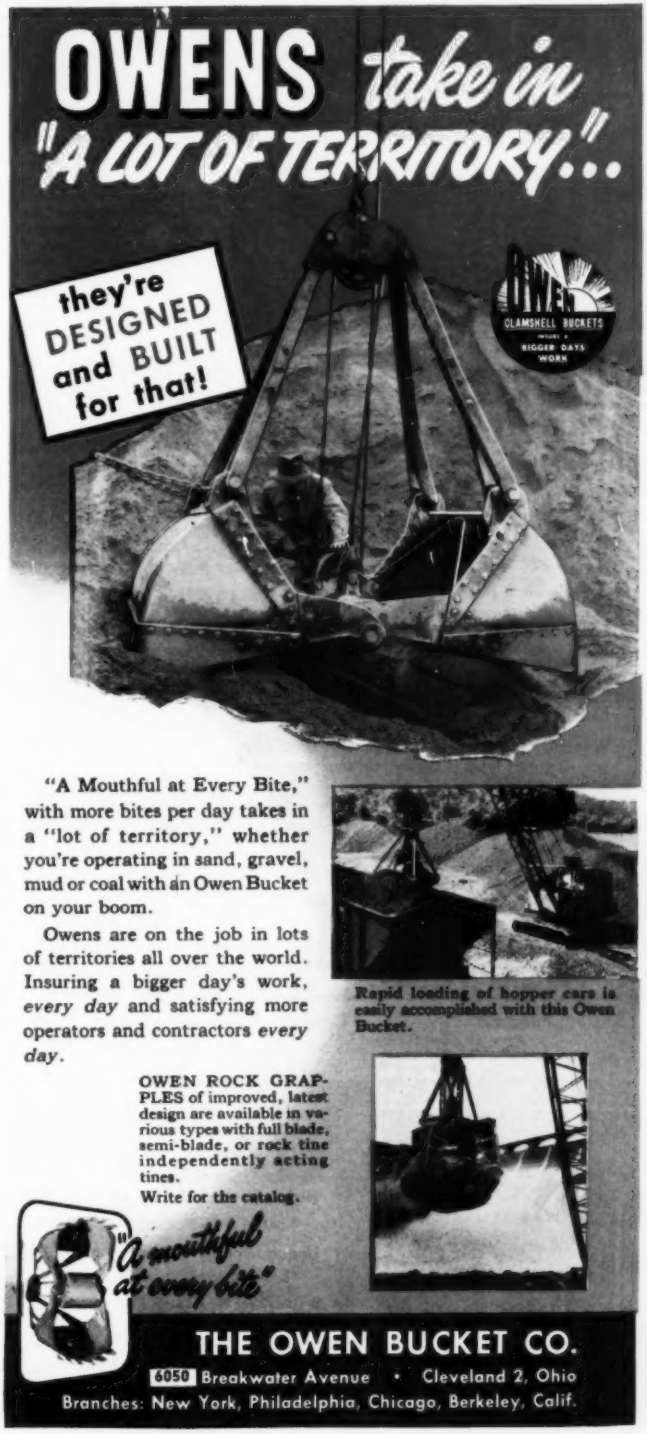
It is well-established law that a purchaser may recover damages from a seller who practiced deceit or fraud. However, there is no legal deceit or fraud if the complaining party or purchaser had an opportunity to decide for himself whether the seller was practicing deceit, and attempting to defraud him.

For example, in *Coffin v. Dodge*, 76 Atl. (2d) 541, the testimony showed facts as follows: One Coffin placed an order for materials with one Goodwin, who was a dealer. Later Coffin sued to recover damages from Goodwin, claiming that the latter had made false representations. The higher court refused to render a judgment in favor of Coffin, and said:

"Where the party has an opportunity to learn the facts, he has no right to rely on representations, the truth of which he has equal means of ascertaining or by the exercise of reasonable diligence could have been ascertained. The plaintiff (Coffin) lived in the same town with Goodwin and could have easily ascertained the true facts from Goodwin."

For comparison see the case of *Crossman v. Bacon & Robinson Company*, 109 A. 487. This court clearly explained that a seller never is liable for fraud unless the purchaser proves that the seller made (1) a material representation which was false; (2) and it was made recklessly or a definite assertion of a fact without knowledge of its truth or falsity; (3) and it was made with the intention that it would be acted upon by the purchaser; (4) and the purchaser did not know the statement was false.

Hence, if a purchaser did not rely upon the representations made by a seller, or knew them to be false, or by the exercise of reasonable care could have ascertained their falsity, the seller never is liable for fraud or deceit.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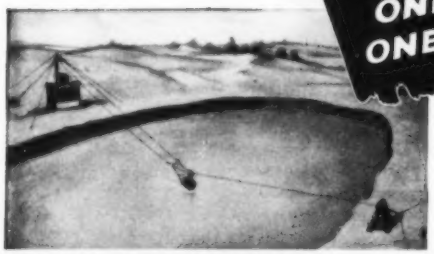

Picture shows how a Sauerman Slackline Cableway digs gravel deep under water and hauls the material to top of screening plant. Swinging in a wide arc, the machine moves a huge yardage at one setup of the mast.

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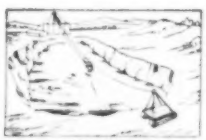

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Cash Is Important

A few days ago a reader wrote as follows: "Very often we sell used and discarded equipment, materials, etc. In many instances the buyers pay a small down payment, and we never hear from them in the future. Some of these purchasers decide they do not want the equipment and forfeit the down payment, while others delay unreasonably in taking delivery. How can we protect our corporation when making disposition of the uncalled for equipment? Can we sell it to another buyer without being liable to the first purchaser? If not, what can we do to avoid liability?"

First, it is well settled law that in order to avoid legal controversy from this source, a written sale contract should be signed by both the purchaser and seller. Furthermore, a clause of this contract should state definitely when the purchaser will pay the balance due and take possession of the equipment within the period of time specified in the contract. If only a small down payment is paid by the purchaser, another clause in the contract should state that failure of the purchaser to pay the balance due before a specified date automatically forfeits the purchaser's down payment to the seller, and all other legal rights in the equipment. If the purchaser pays cash in full for the equipment, he has an immediate and non-revertable title, and the law expects him to remove the subject of the sale from the seller's premises within a reasonable period of time. If he fails in this respect, the seller *cannot* resell the equipment, but may charge a reasonable sum for storage or rental of the premises on which the equipment remains.

According to a recent higher court, if the purchaser pays only a small down payment and the contract does *not* contain a clause which automatically forfeits to the seller the legal title of the equipment to the purchaser, the seller must wait a reasonable period of time and then he may resell the equipment to another purchaser.

For example, in *Anderson v. Universal Company*, 218 Pac. (2d) 361, the testimony showed facts, as follows: A plant owner owned discarded equipment and sold this equipment to the Universal Company for a few hundred dollars cash. Soon afterward the Universal Company sold the equipment to one Anderson. A part of the purchase price was paid in cash at the time of purchase. The Universal Company issued a receipt to Anderson.

Almost two years passed and then the Universal Company sold the equipment to the Horrigan Construction Company. About two weeks later the Horrigan Construction Company commenced dismantling the equipment and had expended about $2,000, when Anderson filed suit, claiming that he was the owner of the equipment and that he had the above mentioned receipt to prove it.

In subsequent litigation the higher court held that the sale by the plant owner to Universal ompany was valid *because the latter had paid cash* for the equipment. Also the higher court held that the contract of sale made by the

Universal Company to the Horrigan Construction Company was valid, saying:

"In the instant case plaintiff (Anderson) allowed the water tank and tower to remain where it was on December 21, 1946, in the same condition for a period of more than two years without any mark of any kind thereon and with nothing whatever to give notice of his claim of ownership or possession. . . . In the absence of a contrary showing proof of ownership carries a presumption of possession or control. Nothing contrary appears in the record. . . . Delivery could not have been made without possession or control."

Hence, this court held that the original seller, the plant owner, had lost control over the equipment because it sold it to the Universal Company which paid cash. However, since Anderson had not paid the full contract price to the Universal Company and never took possession or control of the equipment, the Horrigan Construction Company the last purchaser had legal ownership to the equipment.

Materials Not Suitable

Modern higher courts consistently hold that a seller cannot recover from a purchaser payment for materials not suitable for the intended purposes of the purchaser.

For illustration, in *A. C. Horn Company v. Conder*, 51 So. (2d) 113, the testimony showed that one Conder purchased from the A. C. Horn Company twelve (12) one hundred pound (100) Colorundum Green and ten (10) one gallon Colorundum Glazecoat Green. The material Colorundum is a beautifying, hardening, and water-repellent agent used in the finishing of concrete floors, walls, sidewalks, etc. This product was used by the Conder to finish the concrete floors of certain tourist cabins which he had erected. He maintains that the material was wholly unsatisfactory in that water seeps through the concrete and remains on the floors after a rain. He refused to pay the purchasing price of $336 to the A. C. Horn Company, which sued Conder for this amount.

The higher court refused to hold that Conder must pay for the materials, and said that the evidence established that the products sold were unfit or unsuited for the purpose of waterproofing concrete.

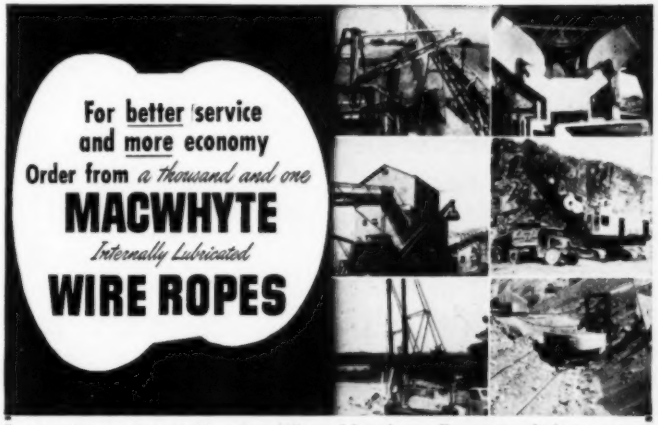
Permanent Damages

Considerable discussion has arisen from time to time over the legal question: "If the owner of a plant which produces or processes nonmetallic materials pollutes water in a stream which runs through private property, what damages must the plant owner pay?"

For illustration, in the late case of *Ingram* v. *Gridley*, 224 Pac. (2d) 798, the testimony showed a property owner sued to abate a nuisance caused by waste material discharged into a ditch which flows through his property.

Although the ditch was found by the court to be a natural watercourse, it held the property owner entitled to damages, and said:

"As a general rule, where the in-



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jury to real property caused by a nuisance is of a permanent character, the damages are measured by the depreciation in the market value of the property injured."

Federal Liability Act

Recently the Supreme Court of the United States held that if an employee contracts a disease due to the employer's failure to provide adequate safety appliances, the employee can recover compensation under the Federal Liability Act, which limits payment of compensation to employees "injured" while attending to their regular work.

For example, in *Urie* v. *Thompson*, 69 S. Ct. 1018, it was shown that one Urie had been employed by a company for 30 years. He was forced to cease work by a pulmonary disease, diagnosed as silicosis. This permanently disabling affliction had been caused by continuous inhalation of dust. The question was presented the court, as follows: Does the coverage of the Federal Employers' Liability Act include "injuries" in the nature of an occupational disease, as silicosis, or is the law confined exclusively to injuries inflicted by accident?

The lower court decided in the negative. However, the Supreme Court of the United States reversed this verdict because the evidence showed that Urie's disease was caused because of the employer's failure to provide safety devices and apparatus that would remove injurious dust from the air. This court said:

"We recognize, with respondent, that the Federal Employers' Liability Act is founded on common-law concepts of negligence and injury . . . In our view, when the employer's negligence impairs or destroys an employee's health by requiring him to work under conditions likely to bring about such harmful consequences, the injury to the employee is just as great when it comes with the suddenness of lightning . . . We hold that petitioner's (employee's) injury is one compensable."

Plant Maintenance Show Draws Crowd of 14,000

More than 6,000 machines and products useful in various aspects of industrial maintenance, the greatest such display ever assembled, were on exhibit at the Plant Maintenance Show, which was held at Convention Hall in Philadelphia, January 14-17, 1952.

Most of the machines and products were shown in demonstrations of actual use to provide executives with opportunities for comparisons.

Executives, 14,000 strong, from all parts of the country attended. More than 30 foreign countries were represented among the visitors.

Concurrently with the show, a conference on plant maintenance was conducted, with 57 industrial leaders participating. Manly Fleischmann, administrator, Defense Production Administration, discussed *Plant Maintenance in National Defense* at the annual banquet.

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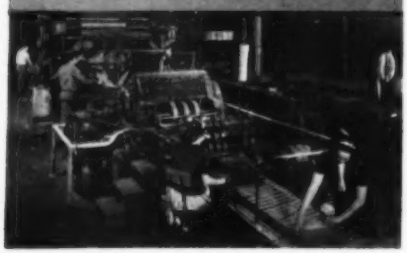

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traffic news

CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 88630 (2)—Proposed to establish on crushed stone screenings, in bulk, in open-top cars, not protected by tarpaulin or other protective coverings, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Joliet, Lehigh, and Kankakee, Ill., to destinations in Indiana and Michigan. Rates as shown in Exhibit B.

EXHIBIT B

From Joliet, Lehigh and Kankakee, Illinois To the Following Points:	PROPOSED Rates in Cents per Net Ton
Michigan City, Ind., New Buffalo, Mich., LaPorte, Ind....	103
Notre Dame, Rolling Prairie, New Carlisle, Terre Coupee, Lydick, and South Bend, Ind.	108
Three Oaks, Galien, Buchanan, and Niles, Mich.....	115
Bertrand, Mich.	122
Mishawaka, Osceola, and Elkhart, Ind.	127
Goshen, Ind.	133
Dowagiac, Mich.	145

Note: Rates include ExParte 162, 166 and 168 increases and will be subject to ExParte 175-A increase NYC (M).

GENERAL FREIGHT TRAFFIC COMMITTEE EASTERN RAILROADS

Bulletin G-5081 (Shipper)—Proposed to establish on slag, commercial crushed, carload, in bulk, in open-top equipment, minimum weight 90 percent of marked capacity of car, from Youngstown, O., to Kittanning and Widnoon, Pa., $1.95 per net ton, subject to ExParte 175 increase.

Bulletin G-5089 (Shipper)—To establish on calcium or lime, carbonate of, not otherwise indexed by name, in Official Classification, minimum weight 60,000 lb. from Painesville and Perry, O., to Appleton and Menasha, Wis., 43 cents per hundredweight; Eau Claire, Wis., 52 cents per hundredweight, subject to Exparte 175 increase.

Bulletin G-5119—Proposed to establish on sand (except naturally bonded, molding, ground, or pulverized sand), and gravel, in open-top equipment, carload, minimum weight of 90 percent of marked capacity of car to Niagara Falls, N. Y., from Camp 2 and Robbins, O., $3.88 per net ton, subject to ExParte 175 increase.

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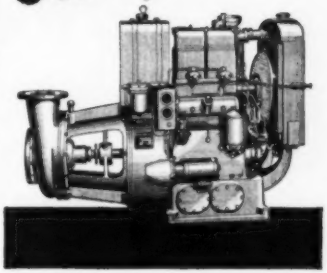

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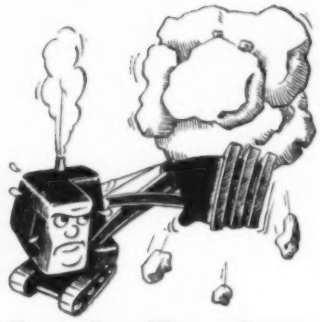

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Bulletin G-5125 (Shippers)—Crushed stone and screenings in straight or mixed carloads, in open-top cars, minimum weight 90 percent of marked capacity of car from Monocacy, Pa., to Fairport Harbor, O., $1.61 per net ton, subject to ExParte 175 increase.

Bulletin G-5127 Brucite and dolomite combined (calcined or dead-burned) carload minimum weight 30 tons, from Narlo and Maple Grove, O., to Morrisville, Pa., 12 cents per 100 pounds, subject to ExParte 175 increase.

Bulletin G-5153 (Shipper)—Proposed to establish on limestone, natural, ground or pulverized, unburned, in closed cars, carload minimum weight 40 tons from Woodville, O., to Lakes Charles, La., $8.24 per net ton, subject to ExParte 175 increase.

MONTANA LINES COMMITTEE

Docket (X) A-451 (Shipper)—Proposed to establish a rate of 50 cents per hundredweight, subject to X-175 on lime, hydrated, carload minimum weight 30 tons from Calcium, Mont., to Mackay, Idaho. Present rate is $1.04 per hundredweight, subject to X-175.

PACIFIC SOUTH COAST FREIGHT BUREAU PROPOSALS

Docket 2348 (S)—Request rate on rock, phosphate, carload from Leefe, Wyo., and related origins in Item 8110 Pacific South Coast Freight Bureau 260-B to Walnut Grove, Calif., $6.66 per ton of 2240 lb., minimum 40 tons.

Docket 2349 (C)—Proposed to establish rate on gypsum, described in item 145, Pacific South Coast Freight Bureau 273-A, carload, Plaster City, Calif., to Los Alamitos, Wintersburg, and Greenville, Calif., 10½ cents per hundredweight, subject to X-162-6-8, minimum 40 tons.

SOUTHWESTERN FREIGHT BUREAU DOCKET

Docket 58822 (I)—Proposed to establish on silica sand, Ludwig, Mo., to Thatcher, Ind., $2.75 per net ton, subject to X-162-166-168 and X-175-A on silica sand, not ground or pulverized, carloads.

Docket 58847 (I)—Proposed to establish on limestone, natural, ground or pulverized, unburned, in closed cars, carload minimum weight 40 tons, rate of 82¼ cents per net ton.

WESTERN TRUNK LINE NEW APPLICATIONS

Supplement 1 to D-25-325—Proposed to establish on lime, common, that is, lump, crushed, pulverized or hydrated in straight or mixed carloads, minimum weight 60,000 lb. from Duluth, Minn., and Superior, Wis., to Appleton, Kimberly, Neenah-Menasha, Nekoosa, and Wisconsin Rapids, Wis. Also to Wisconsin Dam, Wis.: proposed, no change, minimum weight, 30,000 lb.; proposed, 11, minimum weight, 60,000 lb.

At the Cedar Hollow quarry of The Warner Company, Philadelphia, Pa., several pieces of new equipment recently went into operation. A 2½-cu. yd. Marion diesel shovel replaced another Marion of the same capacity which had been used at Cedar Hollow since 1944. Also added were four new Autocar tractors for hauling stone from the shovel to the primary crusher.

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FORT WORTH QD ROLLER CHAIN SPROCKETS

WITH TAPERED SPLIT HUB

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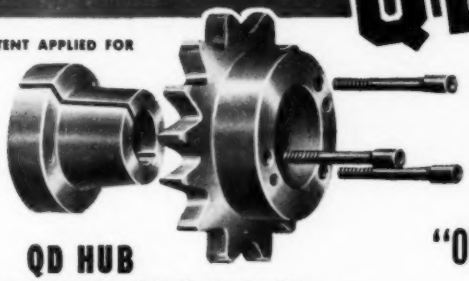
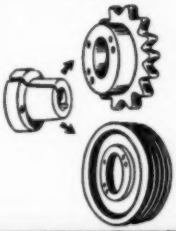


ELIMINATE REBORING!

QD HUB ALSO FITS QD V-Belt Sheave

Speed changes are simplified and "spare" sprockets can be carried more easily.

If your favorite distributor doesn't stock this new item, tell him about it. He'll reward you with better service.



"OFF THE SHELF" SERVICE AVAILABLE FROM INDUSTRIAL DISTRIBUTORS

Reboring of stock bore sprockets to fit various shafts is eliminated due to the various bores available in the QD hub. Installation and removal from the shaft is made easy by the tapered fit of the hub and sprocket. Hub assembly grips the shaft equivalent to a "press fit."

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Equip your vibrating and shaking screens with Hendrick Perforated Plate, which maintains uniformity of mesh throughout an unrivaled length of service life.

Such length of service makes for economy too! Then the full clearance of perforated plate minimizes clogging — an important time-saving feature. A still further time-saver is the ease with which decks can be changed, cutting down labor costs.

You can secure Hendrick Perforated Plate, with any desired shape and size of perforations, in proper gauges of tank, high-carbon, high-tensile, and abrasive-resisting steels, and in other commercially rolled metals. For further details write for a copy of Hendrick Perforated Plate Catalogue.

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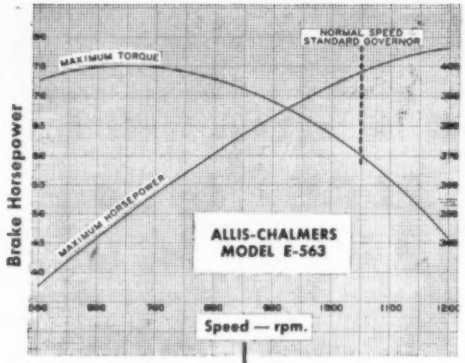

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that A-C Power Units are Tailor-made for Crushing, Hoisting, other Sudden Overload Jobs

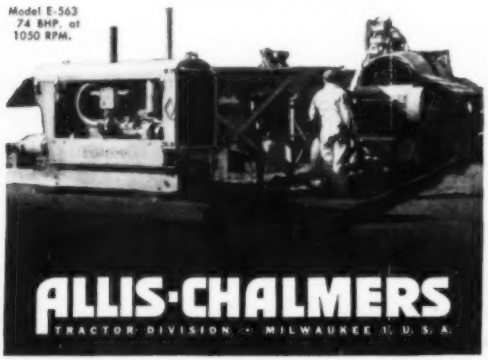
HIGH TORQUE CHARACTERISTICS — Above curve shows how A-C engines build up necessary torque quickly even when throttled way down handle the sudden overloads so common to crushing and allied service.

SUPER-SENSITIVE GOVERNOR — helps lick overloads before they get started. One crusher operator's comment: "That A-C engine seems to 'see' big rocks topple in . . . it's all ready when they hit the jaws."

REAL DUST PROTECTION — Oil bath type air cleaners are standard on Allis-Chalmers power units, as well as fuel and lube oil filters. In addition, oil seals protect crankshaft; water pump is self-sealing.

MEDIUM SPEED, HEAVY-DUTY DESIGN — assures steady flow of power, extra long life at lowest cost. You also save on first cost because these engines are mass-produced along with tractor engines by the thousands.

A-C power units operate economically on gasoline, natural gas or low grade fuel, and there are accessories to fit a wide variety of applications. Our power engineers will gladly help you select the proper unit for your job.



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40 PAGES OF USABLE INFORMATION including complete details about . . .

HOW TO SAVE YOUR BUCKET. Among the many "bucket saver" suggestions are a list of "do's" and don'ts" on the use and abuse of clamshell buckets; tips on how to prolong cable life; common operating mistakes that make bucket lips bow in or bend out.

HOW TO GET THE MOST FROM YOUR BUCKET. "How to Reeve the Bucket for Maximum Efficiency" is illustrated and described—One page is devoted to instructions for operators.

HOW TO REPAIR BUCKETS. Methods of renewing the cutting edges of worn bucket lips include special welding precautions. This section contains instructions for removing and replacing ball bearings in lever arm sheaves, lubrication instructions, and many other practical hints for care and maintenance.

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February 1952

THE CONCRETE MANUFACTURER

A SPECIAL SECTION OF PIT AND QUARRY

North, South, East, West . . .

PROFIT with STEARNS

HIGH PRODUCTION + LOW COST = LARGE PROFIT

STEARNS 15

WEST VIRGINIA—Charleston
Concrete Products Company.

PRODUCTION TRIPLED WITH 25% LESS LABOR

PENNSYLVANIA—New Holland
New Holland Concrete Products, Inc.

SIX TIMES FORMER PRODUCTION, USING SAME LABOR FORCE

Stearns 15 means profit! Listed below are a few of our many other large plant users of this great concrete block machine:

SOUTH CAROLINA—Greenville
Greenville Concrete Company.

MISSOURI—Kansas City
Cinder Concrete Products, Inc.

IOWA—Sioux City
Concrete Products Co.

ILLINOIS—Kankakee
Kankakee Block Co., Inc.

FLORIDA—Ft. Lauderdale
Broward Quarries, Inc.

NEW YORK—Schenectady
Dagostino Building Block.

STEARNS 50

NEW YORK—Brooklyn
Parkway Cinder Block and Building Material.

LOWEST LABOR AND UPKEEP COST IN OUR HISTORY

ALABAMA—Selma
Selma Concrete Products Co.

NO FINER BLOCK CAN BE MANUFACTURED

Here are a few of the many other medium-sized concrete block plants throughout the country profiting with the Stearns 50:

NEW YORK—Port Jefferson, L. I.
Nelson Mason Supply Corp.

NORTH CAROLINA—Wilson
Linvilles, Inc.

TENNESSEE—Union City
McAdoo Builders Supply Co.

MASSACHUSETTS—Gardner
S-K Block Co.

FLORIDA—Bradenton
Aquatite Tile Co.

MICHIGAN—Midland
John Whitman and Son.

STEARNS ZIPPER

MICHIGAN—East Lansing
Atlas Brick and Block Co.

10% MORE BLOCKS PER SACK OF CEMENT, USING SAME AGGREGATE

OHIO—Marysville
Wm. J. Conrad and Son.

TOP SMALL MACHINE PRODUCTION WITH 25% LESS LABOR

Prove to yourself that the Stearns Zipper is the most profitable machine for the small concrete block plant, for example in:

PENNSYLVANIA—Johnstown
Ed Miller and Son.

MASSACHUSETTS—Hingham
Weston and Kennedy.

IOWA—Fort Dodge
Fort Dodge Concrete Co.

SOUTH DAKOTA—Aberdeen
Aberdeen Block Co.

TEXAS—San Angelo
San Angelo Building Materials Co.

MISSISSIPPI—Tupelo
Tupelo Concrete Products Co.

STEARNS

RECORD SALES SPEAK FOR THEMSELVES

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ADRIAN • MICHIGAN

STEARNS 15 STEARNS 50 ZIPPERS JOLTCRETES MIXERS SKIP LOADERS TURNTABLES SINTERLITE

"I would like you to know

what DURAPLASTIC has done to improve my products and save money"

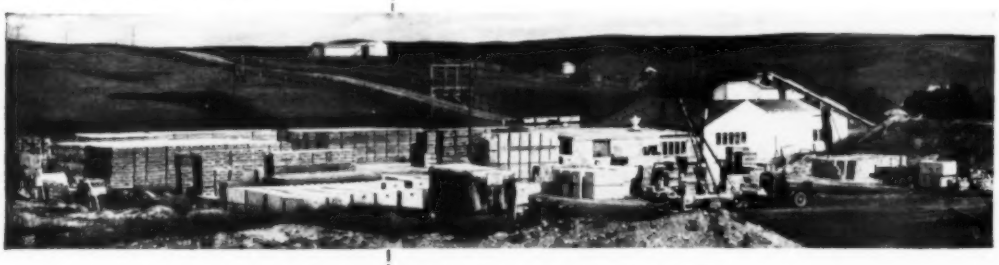
AT HIS PLANT (below) Mr. Schultz also makes precast septic tanks, well curbing, patio blocks, splash blocks and other products using a wet mix. He finds Duraplastic "makes concrete more watertight and prevents bleeding."

says Kenneth A. Schultz of Schultz Concrete Products Co., Minot, N. D.

"For years I used different brands of cement, mostly 'regular' and was troubled by poor feeding of the mix in the block machine, fresh blocks that would not stand the least jar when they were green, and a large percentage of culls off the racks when we cubed for yard stockpiling," notes Mr. Schultz.

"The last two years I have used 100% Duraplastic and find the mix feeds through the machine without trouble. Duraplastic makes a mix that sticks together, almost eliminating breakage. And our culls in unloading and cubing are so few now that it would be hard to figure a percentage," he adds.

Mr. Schultz's experience with Duraplastic air-entraining portland cement is typical. That's why so many manufacturers prefer Duraplastic for concrete block brick, pipe, drain tile and silo staves, and other products.



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"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

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AIR-ENTRAINING PORTLAND CEMENT

Makes Superior Concrete Products at No Extra Cost

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

The CONCRETE MANUFACTURER February 1952

HOW MUCH CAN WE TAKE?

LAST month we attended the 32nd annual convention of the Wisconsin Concrete Products Association, a detailed report of which appears elsewhere in this issue. The program of the meeting was carefully planned, the speakers were capable and well informed, the subjects covered were timely and pertinent to the interests of the audience, and in all respects the affair fully measured up to the high standards which the organization has maintained for many years.

One entire afternoon of the two-day session was listed in the program under the forthright heading of *How Government Regulates Your Business.* Four guest speakers were present to explain to the products men how wage stabilization, price stabilization, and the Controlled Materials Plan program affect their business. They impressed us as intelligent and reasonable human beings, and they somehow managed to deal with an irritating subject without compounding irritation—an accomplishment which we would be prepared to admire wholeheartedly in almost any other field of endeavor.

But as we listened to their glib and profuse references to paragraphs and subparagraphs, to general orders and amended orders, to hand-me-down regulations and tailored regulations, we were overcome suddenly by the gloomy conviction that right here in our own back yard, and not on some still-to-be-determined distant battlefield, man's best hope of freedom may one day be quietly and methodically slugged to death. Unless we misread the signs completely, bureaucracy within our own borders shows every indication of being able to do the job efficiently and conclusively.

Our quarrel isn't with the theory underlying government controls, nor with the basic principle that in periods of emergency certain rights of the individual may be curtailed. But after 20 years of almost uninterrupted emergency, the techniques of bureaucracy have developed to the point where they inevitably tend to perpetuate the very conditions which they are at least theoretically supposed to terminate. Business and industry are now expected to operate in compliance with regulations and directives stated in language so obscure, vague, and confusing that even the authors frequently haven't the dimmest notion what it means. Each new venture into the realm of control releases a new flood of bureaucratic verbiage requiring additional mountains of senseless paper work. Often as not, the succession of so-called clarifying directives which follows the issuance of general regulations succeeds only in compounding the confusion, and business is placed in the unenviable position of having to guess at the rules. "If you guess wrong," the bureaucrats say in effect, "we'll catch up with you some day."

Against such obstacles it seems far more remarkable that the defense effort moves at all than that it moves in low gear. A less virile economy than ours would have bogged down hopelessly under the sheer dead weight. Indeed, the theory seems to prevail in Washington that our productive system is so inherently lusty that it can be fiddled with and badgered indefinitely without serious consequences. We also believe in the strength and durability of American enterprise, but we are by no means sure that the bureaucrats, given time enough, won't wreck the show.

William M. Avery

the QUALITY of the truck mixer you buy today decides your margin of PROFIT tomorrow

MEMBER NRMCA

Let's take a long look into the future. The truck mixer you're planning to buy this year may have to stay on the job for many years to come. Will it have the ruggedness, the bull-dog strength and stamina to "take it"... month after month?

When you buy a Challenge, you can answer this question with an emphatic "Yes." Check with your Challenge dealer and see for yourself how a Challenge is made. Look at its tough, corrosion-resistant steels... at its smoother, automatic welding... at its powerful oversize bearings... at its heavy duty gear reducer... at its sturdy, reliable engine and transmission. You'll be convinced that a Challenge will stay on the job... will go right on building your profits, year after year after year.

What's more, Challenge Truck Mixers are designed to deliver an extra margin of profit the minute they are put into service. Bigger drum volume, lighter weight, mean more legal payload... more dollars in your pocket... RIGHT NOW!

for more net PROFIT today ...and tomorrow standardize on CHALLENGE... the profit line

It's important these days to get the facts regarding the vital equipment on which the future of your business depends. Arrange an actual ON-THE-JOB demonstration with your Challenge dealer.

Power Take-off installation optional. Data and prices on request.

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Please Send Me Complete Information On Challenge Mixers Together With The Name and Address of My Nearest Challenge Dealer.

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COOK BROS. EQUIPMENT CO.

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Exclusive National Distributors for CHALLENGE, The Modern, Streamlined Truck Mixer

news of the concrete industries

Rebuilt Mixing Plant At Bull Shoals Dam Is Nearing Completion

Rebuilding of the concrete mixing plant at the Bull Shoals Dam project near Mountain Home, Ark., has started, and the construction is expected to be completed in the near future. The mixing plant was destroyed by a fire on January 1, at a loss of $200,000, according to Lt. Col. A. W. Starkey of the United States Engineers district office at Little Rock, Ark. Four mixers and a small locomotive were reported lost in the fire.

Although the dam itself was completed last November, the mixing plant is necessary to finish construction of the power house. The fire was believed to have started in a cement unloading hopper. It was the second fire at the plant, the first occurring in January, 1949.

Lock Joint Pipe Co. Head, A. M. Hirsch, Dies at 73

ALLAN M. HIRSCH, 73, founder, former president, and board chairman of the Lock Joint Pipe Company, East Orange, N. J., died on December 21, 1951. He founded the company in 1905, and served as president until 1950, when he became chairman of the board.

Mr. Hirsch was a pioneer in many of the great major developments of the industry. His first venture in the industry was the development of split concrete casings to protect wooden piles from termites. In 1914 he entered the concrete pressure pipe field by supplying 84- and 104-in. pipe for lining the water tunnel for Baltimore, Md. From 1919 to 1921 he built many of the first modern concrete pressure pipe lines, and during World War II he brought out Lock Joint prestressed concrete cylinder pipe, a design which made it possible to compete in price with cast iron and steel pipes in diameters as small as 16 in.

Walter W. Colpitts Dies— Reinforced Concrete Expert

Walter William Colpitts, 77, consulting engineer, who pioneered in the use of reinforced concrete and helped to organize many railroads, died at his home on December 23.

In 1913 he joined the late William H. Coverdale in a consulting engineering practice in New York. The partnership became Coverdale and Colpitts in 1916, and Mr. Colpitts was senior partner in the firm at the time of his death. He was a director of several firms, including the Celotex Corporation.

Mr. Colpitts wrote one of the first textbooks in the United States on the subject of reinforced concrete.

Coming Events

February 14-16, 1952 — Windsor, Ont. Third annual meeting, National Concrete Products Association (of Canada) and exhibit. Prince Edward Hotel.

February 18-20, 1952—New York. 32nd annual convention, National Concrete Masonry Association. Hotel New Yorker.

February 26-28, 1952—Cincinnati. 48th annual convention, American Concrete Institute. Netherland Plaza Hotel.

February 27 and 28, 1952—Chicago. Third annual convention and meeting, American Concrete Pressure Pipe Association. Drake Hotel.

February 27-29, 1952—New Orleans. 46th annual convention, Autoclave Building Products Association. Roosevelt Hotel.

February 28-March 1, 1952—Chicago. 44th annual convention and meeting, American Concrete Pipe Association. Drake Hotel.

March 3-5, 1952—Denver. Second annual convention and meeting, American Concrete Agricultural Pipe Association. The Brown Palace Hotel.

J. C. Ehle Appointed Cleveland Builders Supply New Vice-President

Jay Ehle, vice-president of the National Concrete Masonry Association, has been appointed vice-president of the Cleveland Builders Supply Company, according to an announcement released by W. T. Rossiter, president of the firm.

Mr. Ehle has been associated with Cleveland Builders Supply since 1933, and is presently production manager of the concern's block, tile, and brick manufacturing plants. He is a civil engineer and a director of the Ohio Ceramic Association.

Universal Concrete Pipe Co. Holds Management Meeting

Universal Concrete Pipe Company, Columbus, O., held a general management conference at the Seneca Hotel in Columbus on December 14 and 15, 1951. Plant managers, superintendents, and sales representatives from Universal's network of 23 plants met with home office executives to discuss production and sales problems.

Key subjects covered at the meeting were office procedures, accounting methods, and inventory control. A banquet concluded the sessions. Speakers included Joseph Miller, president, Lewistown Pipe Company, Chicago; M. W. Loving, consulting concrete specialist, Chicago; and C. M. Howard, engineer-manager, Concrete Products Association, Seattle, Wash.

Wisconsin Products Assn. Holds 32nd Annual Meeting

Milwaukee's Plankinton Hotel was the place selected for the 32nd annual convention of the Wisconsin Concrete Products Association on January 16 and 17.

Scheduled on the program were talks on government regulations and how they affect the products industries, association activities in the United States, code requirements of concrete masonry in Wisconsin, and the business outlook for 1952, as well as a demonstration of the new absorption equipment. There were also open forums for discussions on operating and sales problems and steam curing.

• Some of the Homeward Step licensees who recently attended the firm's annual convention at Springfield, Ill.

Homeward Step Licensees Hold Annual Convention

On January 14 and 15 licensees of Homeward Steps, Des Moines, Ia., met at the Hotel Abraham Lincoln in Springfield, Ill., for their annual convention. Producers from 28 states attended the two-day meeting, which was devoted mainly to laying out a well-planned sales promotion program for 1952.

A high point of the second day was a trip to the Homeward Step plant in Springfield, owned and operated by T. C. DeWall and his twin sons, Boyd and Loyd. The firm has developed a fine business within the two years of its existence.

A cocktail hour and a banquet, followed by dancing, furnished relaxation for those attending, with the parent company as host.

Washington Products Assn. Holds 23rd Winter Meeting

Members of the Concrete Products Association of Washington held their 23rd annual winter meeting on December 8, 1951, at the Construction Center Building, Seattle, Wash.

An important action taken by the group was the unanimous approval of a new unit to be known as the "Column Block", which will greatly simplify reinforced masonry construction. Columns are formed by alternate courses of "h"- and "U"-shaped blocks, and horizontal tie beams are handled with the familiar "bond beam" units. The size of the reinforced column is 12 by 12 inches inside the block. Vertical column steel may be erected prior to the laying of blocks. It was stated that cost and ease of construction are about the same as in regular masonry designs.

Bill Cox, who is conducting dimensional change studies at Washington State College, presented graphs prepared from data of current tests in which moisture and curing movement are being observed.

John Roberson, of Washington State College, reported on the tests he is conducting on "air release from pipe at restricted vents". He indicated that the air release valve used in the experiments had not met expectations.

An afternoon feature was a lecture, illustrated with slides, given by Bennett Saunders of the Seattle Portland Cement Association. The subject was the precasting of bridges. The speaker stressed the economy in time and cost of such construction. He also ran a film entitled *Building Farm Homes of Concrete*, and pointed out many ways in which concrete can serve the building and farm industries.

R. M. Gilmore, industrial safety engineer, who has been appointed to the executive board of the Washington State Safety Council by Governor Arthur Langlie, led a discussion which brought out the economies effected in plant safety measures. He also pointed out some of the "costs" of inattention to safety, such as loss of production, low morale, damaged equipment, poor public relations, etc.

During the evening meeting C. M. Howard introduced G. R. Cysewski of the Washington State Highway Department, who presented an illustrated lecture on *Highway Problems and Development*. Colored aerial photographs of Eastern freeways were shown and interesting comments were given on the problems of locating and selecting various types of clover-leaf intersections. Among the many local problems encountered by the department, the speaker stated, is the objection of landowners to limited-access highways. Actually, such highways reduce accident frequency, and with good service roads no hardships are forced on these landowners. He reported that in sections where such highways have been built, landowners now prefer these to other types.

H. Raymond Smith, consulting mechanical engineer and a director of the Raymond Concrete Pile Company, was recently made a life member of the American Society of Mechanical Engineers. He has been with the firm since 1907.

Illinois Septic Tank Assn. Elects Slate of Officers—Names Klueter President

At a recent meeting in Springfield, Ill., officers were elected for the Illinois Precast Concrete Septic Tank Manufacturers Association. The election took place during the annual convention of the group.

The slate of officers is as follows: LeRoy Klueter, Edwardsville, Ill., president; Bernard Abel, Pekin, vice-president; Robert Humphrey, Aurora, secretary-treasurer; and John H. Campbell, Kankakee, and Francis Ryan, Seneca, directors. J. Everett Sheley, Moline, is the retiring president.

Speakers included J. B. Coulter, Cincinnati, O., senior assistant engineer for the U.S. Public Health Service; W. E. Budd and Otto Halden, Springfield, representing the Illinois Department of Public Health; and Eugene Mittelberg, Mt. Sterling, field representative for the Illinois Retail Plumbers Association.

Expanding Market Reported For American Block Machines

Block plants in widely scattered parts of the world are using American-made equipment, according to Walter Neth, sales manager for the Columbia Machine Works, Vancouver, Wash. Mr. Neth reports that block machines produced by his firm have been shipped recently to plants in Jesselton, North Borneo, Edmonton, Canada, (for an operation farther north), Bermuda, and the Hawaiian Islands.

These machines, available in automatic or semi-automatic models, produce 480 standard 8- by 8- by 16-in. units per hour; they can turn out a variety of blocks by the plain pallet method. The firm also makes mixers and skip hoists.

• Correction

We regret that in our description of the North Star Concrete Company's operation at Minneapolis, Minn., (Concrete Manufacturer for November, 1951, page 206) we expressed the opinion that this plant had pioneered in producing longer lengths of concrete pipe by the packer head process. Now it appears that Zeidler Concrete Products Machinery Company equipment—a packer head pipe machine—made 6-ft. lengths of pipe in 1932 and that similar units "have made them by this method ever since". We have also learned that the roller packer head is not an innovation; it has been in use since 1909, when it was first employed in the manufacture of drain tile.

Directors of the Raymond Concrete Pile Company, New York, N. Y., have authorized the redemption on February 1 of all the company's $3 cumulative preferred stock. Payment will be at $55 a share, plus the regular quarterly dividend of 75 cents. The preferred stock may be converted into common stock at the ratio of two common shares for each preferred share.

Quality Control, Alert Maintenance, Sound Sales Promotion Spell Success

Illinois Block Maker Turns Out 2,000,000 Units Yearly With One Machine Operating a Single Shift

another ON THE SPOT report

By WILLIAM M. AVERY

ONE of the most difficult problems we know of in the management of any manufacturing enterprise has to do with the maintenance of a healthy balance in the various activities which add up to successful or unsuccessful operations. We have in mind such apparently diverse elements as product development, productive efficiency, preventive maintenance, quality control, market studies, sales promotion, the operation of selling itself, and customer service. When any one of these elements is stressed to the exclusion or detriment of the others, the whole enterprise is bound to suffer in some measure.

This observation is prompted by our recent visit to the plant of Irions Concrete Block Company at Chillicothe, Ill., a firm that in our judgment has achieved just the degree of balance in its operations which should be the goal of every producer in the block industry. In this instance, at least, the careful synchronization of component activities has created an organization that runs with the smoothness and precision of clockwork.

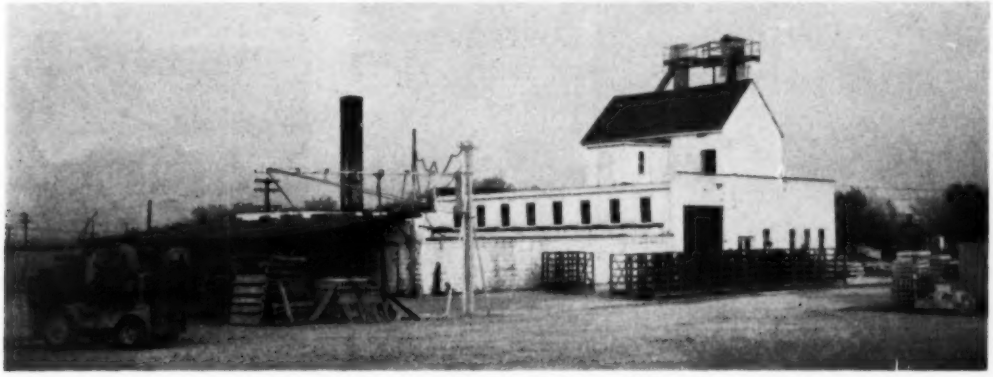
The company's sales promotion program, for example, strikes a good balance between long-range measures and those designed to produce fairly prompt results. As a result, a profitable market area has been built up in cities and rural areas at distances up to 80 miles from the plant. Intelligent and sustained use is made of both newspapers and radio programs as advertising media, and these efforts are supplemented by periodic direct-mail campaigns. Since an important part of the total market is located in and around the nearby city of Peoria, a full-time salesman is maintained there. Another man devotes his entire time to sales and market development in rural areas, an activity which has brought about a marked increase in farm sales.

The company seizes every opportunity to exhibit its products in home shows, occasionally sharing space with its dealer in a particular locality. Quite elaborate exhibits are put together for the Peoria Junior Chamber of Commerce home show each year, and the company firmly believes that the expense of such displays has been more than justified by the tangible returns.

The organization believes in selling through dealers, wherever and whenever this practice will develop a market that might not otherwise be served. At present, dealers are located in towns as far south in the state as Petersburg and as far north as Mendota and LaSalle.

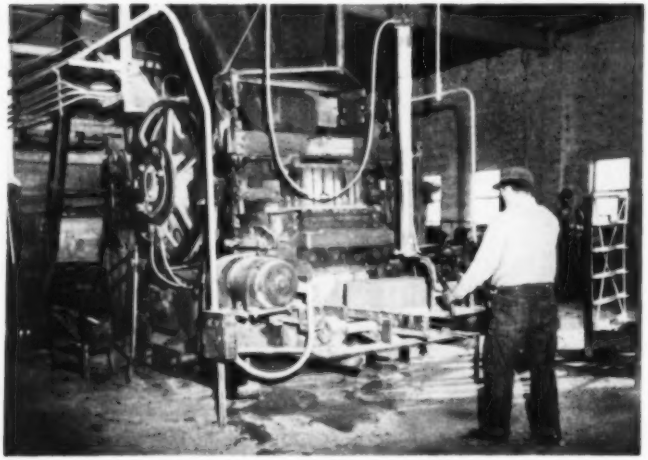
To house its own office personnel more comfortably, and at the same time to show the public in general and its customers in particular an example of the best in concrete masonry construction, the company not long ago erected a new office building at a cost of about $15,000. An unusually attractive building, it was designed by a well-known architec-

General view of the modern masonry unit plant operated by Irions Concrete Block Co. at Chillicothe, Ill. Crane in the foreground carries a yard hoist used in cubing operations.



ABOVE: View of the company's attractive new office building, in which maximum use is made of concrete products in order to demonstrate their versatility.

ABOVE: Still under construction when this photograph was taken, the new lightweight masonry home of Jacob H. Irions, the company's president, is now one of the show places of Chillicothe. BELOW: Blocks are produced on this modern high-capacity machine at the rate of 960 units per hour. Off-bearer basket handles two pallets (or 6 standard units) at a time to permit operator to keep up with the machine.



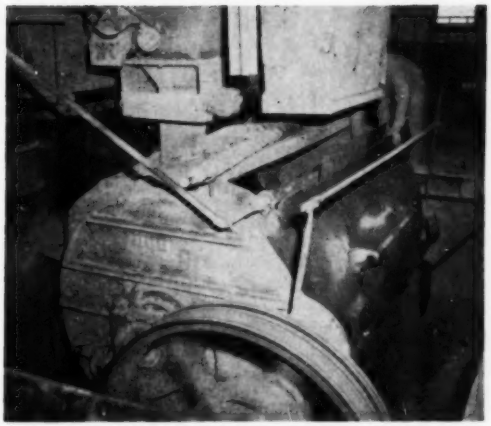
tural firm in Peoria to show in every possible way the versatility of concrete masonry units. Exterior walls, all partitions, and the roof are built of Celocrete lightweight units. A comfortable, even temperature is achieved by radiant heating in winter and by air conditioning in summer, and employees miss no opportunity to tell visitors about the extremely low-cost fire insurance policy which accompanies the 1A1A rating of the building.

The merchandising program was broadened in 1948 to cover soffit block floor and ceiling installations, and 50 Acrow telescopic centers were obtained from the Besser Manufacturing Co. for the use of contractors and others. As an indication of how much this market has grown, it is significant that last year over 200 centers were in use most of the time.

While the design and layout of the Irions block are conventional for the most part, the overall operating picture, particularly from the standpoint of continuity, is anything but conventional. The plant was built and placed in operation in 1946. From that time until late last year—a period of almost five years—there was not a single major breakdown. This truly remarkable record was achieved, as all such records must be, by a strict and unyielding program of preventive maintenance. Serious breakdown and machine failures have been virtually eliminated by frequent inspections, followed by immediate repair or replacement of worn or defective parts, and by close attention to such important details as lubrication, alignment, cleanup, and the avoidance of overloading or misusing equipment.

An important factor in the elimination of production delays has been the practice of having an extra mold ready to operate at all times. If anything goes wrong with the one in the machine, it is immediately replaced, and production is resumed after a delay of 15 to 30 minutes at the most. During the 5-year period the plant was never shut down for a major overhaul of the block machine. Late last year, with the record firmly established, the machine was torn down and completely reconditioned, and it seems entirely likely that the plant is now embarked on another long period of continuous operation.

The practice of having a night man take care of all cleanup work has undoubtedly helped the company's program of preventive maintenance, and also contributed to the over-all productive efficiency of the



AT LEFT: View of the 2-cu. yd. weigh batcher. Above it and to the right is the water meter. AT RIGHT: The 50-cu. ft. batch mixer is located in a concrete pit at the rear of the block machine. A skip hoist elevates the material to the supply hopper over the machine.

plant. The regular 11-man production crew works right up to the end of the day, without taking time out at the end of the shift to clean up equipment. Thus the important work of inspection, lubrication, and the preparation of equipment for the next day's operations becomes the responsibility of one man. The time-honored practice of passing the buck is eliminated, and a better job inevitably results because the responsible party is far more familiar with maintenance problems than the operating crew.

The Irions company produces Celocrete and sand-and-gravel masonry units, the former material accounting for 30 percent or more of total output. Celocrete is shipped in by rail from a plant located in South Chicago, while sand and gravel is hauled by truck from the nearby Chillicothe Gravel Company plant, which is also owned by the Irions interests. These materials, as well as portland cement, are dumped into undertrack hoppers, elevated, and stored in a 4-compartment Butler bin. Each of the three aggregate compartments holds about 75 tons of material, and the cement compartment accommodates about 450 bbl., or approximately a carload.

The materials are proportioned by weight with a 2-cu. yd. Butler batcher, and mixing water is metered. Darex is used at the rate of 2 oz. per bag of cement to entrain air, and the mixing is done with a 50-cu. ft. Besser batch mixer. The units are molded on a Besser Super Vibrapac machine and placed in 72-unit steel racks.

There are five curing rooms with a total capacity of 120 racks, or 8,640 standard units. Three of the rooms are 8 ft. wide by 57 ft. long and the remainder are 12 ft. wide and the same length. The curing system is somewhat unusual in that no live steam enters the kilns. Warm moist air enters the rooms through floor grills which are located over a system of lateral tunnels connected to a main tunnel. A single large variable-speed fan located at the end of the main tunnel blows air through two large steam radiators to effect a gradual temperature rise, and moisture is introduced by means of sprays in front of the blower. Air is removed through openings at both ends of each kiln, returned through a system of duct work to the fan, and recirculated. Condensation drains into a sump and is pumped back to a stoker-fired boiler.

Temperatures in the kilns increase gradually to a maximum of about 110 deg. F., and this level is held for several hours before the heating system is cut off. The units then soak for the remainder of the night until the kilns are cleared for the next day's operations.

With the exception of 4-in. units and solids, all production is formed into cubes containing 72 8-in. units or equivalent. Part of this work is done by a permanently mounted yard hoist operated by one man, and the remainder by a two-man crew working in the conventional way.

Two LT-60 Towmotor fork lift trucks handle the cubes and stack them three-high in the storage. A third Towmotor, an LT-56, moves the racks from the block machine to the kilns, and from the kilns to the cubing area. The fully-paved storage yard holds 400,000 units.

The Irions plant readily turns out 8,700 8-in. equivalents in its regular 9-hour work day, or approximately 960 per hour. The block machine is equipped with a special vibration mechanism supplied by Oswalt Engineering Service Corp.

(*Continued on page* 154)

With residential construction accounting for 25 percent or more of total sales, the company makes good use of job signs like the one pictured below.

Close control of quality is in part a result of regular strength determination. Here plant superintendent Gould Oakes tests a Celocrete unit in the 100-ton concrete testing machine.

Wisconsin Products Men Hold Their 32nd Annual Convention at Milwaukee

Program covers government regulations and a wide range of technical subjects

By WILLIAM M. AVERY

another ON THE SPOT report

PRODUCERS of concrete masonry units and allied products converged on the Plankinton Hotel in Milwaukee on January 16 for the 32nd annual convention of the Wisconsin Concrete Products Association. A carefully planned program of business and technical sessions covered the full gamut of current industry problems and activities, including wage and price stabilization, C.M.P. regulations, activities of the national association, the place of block in the field of prestressed concrete structures, steam curing and moisture determination, and state of Wisconsin code requirements for concrete masonry.

Paul Jensen of the Jensen Block Co., Racine, was elected to serve as president of the association for the forthcoming year. He succeeds Emil Fehr of the Fehr Concrete Pipe Works, Eau Claire. Ray Minette of Milwaukee was elected first vice-president, and Arthur W. Grube of the Sheboygan Brick Company was named second vice-president. A. W. Devos and Edwin Bartlett Jr., both of Milwaukee, were re-elected to the office of secretary and treasurer, respectively. Three new directors—Ray Melville of Wisconsin Rapids, Arthur W. Grube of Sheboygan, and Fred Radandt of Manitowoc were also elected during the two-day meeting.

Wage Stabilization Most of one session was spent in discussing how present government regulations, particularly those pertaining to wage and price stabilization and the C.M.P. program, affect manufacturers of concrete products. Joseph Johnson, an official of the local wage stabilization office, reviewed present regulations with respect to wage and salary increases. He showed that in certain extreme cases it is possible and legal to increase a particular employee's compensation as much as 23.9 percent, utilizing the blanket 10 percent increase permitted under G.W.R. No. 6, the maximum 10 percent allowed under the merit and length-of-service provisions of G. W. R. No. 5, and the 3.9 percent cost-of-living increase provided under G. W. R. No. 8.

This speaker also brought out, in answering a question raised by one of the producers in the audience, that it is permissible to hire an employee at a probationer's rate, and after a reasonable length of time to adjust his wage rate to the level which the employer believes the job should carry. An increase of this sort would not be deductible from the total funds available for cost-of-living and merit and length-of-service increases.

Mr. Johnson pointed out that the basic principle of wage stabilization is to prevent runaway practices by restricting employers to the general pattern and scope of wage and salary increases which they have maintained in the past. There is no intention, he insisted, to police business; in the case of innocent violations, it is both the purpose and practice of the boards to show the violator how to amend his practice in order to stay within the framework of existing regulations.

Controlled Materials E. N. Johnston, an industrial analyst with the Department of Commerce, explained the workings of the Controlled Materials Plan program. He first described the "open-end" plan which enables a producer of consumer durable goods to draw upon the free-market amounts of controlled materials not actually used for defense purposes. This procedure, which initially applied only to production materials, was extended several months ago to cover materials of construction as well.

Under the current method of C.M.P. operations, the speaker said, an allotment for material is similar to a cashier's check in that it is written against a supply which is known to be available. Allotments are not being made to any appreciable extent

• Officers and directors of the Wisconsin Concrete Products Association. Standing, left to right: George Andres (Fond du Lac Concrete Products Co.), Ray Minette (Berthelet Fuel & Supply Co.), Paul Jensen, newly-elected president (Jensen Block Co.), Edwin Bartlett Jr. (Best Block Co.) and Herbert Loucks (Madison Silo Co.). Seated, left to right: Arthur W. Grube (Sheboygan Brick Co.), A. W. Devos (Devos Block Co.), Ray Mellville (Wisconsin Rapids), and Harry N. Lorenson (Waylite Concrete Masonry Co.).

• Left to right: Ray Minette, vice-president of the association, who presided at one of the sessions, and Joseph Johnson and E. N. Johnston, who spoke to the meeting on wage stabilization and the C.M.P. program.

• J. Wes Craighead and Jesse Besser, Besser Manufacturing Co., Carl Menzel, Portland Cement Association, and Harry B. Emerson, Lehigh Portland Cement Co. Mr. Menzel demonstrated a new method of determining the moisture content of concrete block.

in excess of the amounts of controlled materials actually available. He pointed out that the bulk of second quarter allotments would be issued by the first of February.

In discussing the so-called small user classification for self certification, he pointed out that the amounts of material which may be obtained have been increased, but that usage in 1952 may not exceed the average quarterly consumption last year.

Price Stabilization Two representatives of the Office of Price Stabilization were also present at the meeting and presented brief summaries of the pricing regulations affecting industrial and building materials. It was brought out that the general ceiling price regulation was largely an emergency measure, and it was adopted in full realization that it was poorly adapted to the needs of a number of industries. Several branches of industry now have tailored regulations worked out in co-operation with their own representatives, and it is believed that eventually regulations of this type will be developed for both the concrete block and ready-mixed-concrete industries.

National Association The second session of the Milwaukee meeting was opened by E. W. Dienhart, executive secretary of the National Concrete Masonry Association, who referred briefly to some of his organization's current activities in behalf of the block industry. The staff has been in close touch with N.P.A. and O.P.S. during the past year, and has given particular attention to the industry's problems relative to reinforcing steel.

In these times of peak production, Mr. Dienhart said, it is more important than ever for all producers to make maximum use of existing knowledge of how to make top-quality masonry units. In closing he extended a cordial invitation to N.C.M.A. members in the audience to attend and participate in the organization's annual convention in New York.

Prestressed Concrete Using slides and a running commentary, Charles W. Yoder, structural engineer for the Portland Cement Association, discussed the possibilities of a new market for concrete block in the field of prestressed concrete construction. He expressed the view that prestressing is probably the most important single development which has taken place in concrete construction in the last 20 or 25 years. It promises, he said, to open markets for concrete masonry units in which the product could otherwise never compete.

The speaker referred specifically to two structures in Tennessee which were built from plans prepared by Bryan & Dozier, consulting engineers of Nashville. One of these, a football stadium at Fayetteville, is believed to be the first prestressed concrete structure, employing machine-made concrete units and galvanized prestressing cables, to be constructed in this country.* About 5,000 12- by 8- by 16-in. machine-made high-strength masonry units were used for the prestressed beams, and the entire project was completed in 32 working days at a total cost of $11,500, or about $7.65 per seat. This figure, Mr. Yoder said, is approximately one-half the cost of a comparable reinforced-concrete stand.

The second project referred to was a prestressed bridge built in Madison County, Tenn. The deck of this three-span structure consists of 45 prestressed beams 12 in. deep and 16 in. wide (15 beams in each span), and placed edge to edge to form a deck 20 ft. in width. The beams were site fabricated from machine-made 12- by 8- by 16-in. units prestressed by means of two galvanized steel cables which pass through the open cores in the blocks and ter-

*See: *Use Machine-Made Concrete Units On Prestressed Concrete Structures*, THE CONCRETE MANUFACTURER, January, 1951, page 222.

• E. W. Dienhart, executive secretary of the National Concrete Masonry Association, Charles Gatzke, Desplaines Concrete Machinery Co., and Bill Dienhart, Thomas W. Noble Co., Inc.

minate against steel bearing plates at each end. Over 2,000 concrete units were required for the 70-ft. span.

The speaker emphasized that the masonry units used in these projects and in a more recent bridge construction job in Southern Illinois were produced with standard block plant equipment, and that only very minor changes to the mold box were necessary in setting up for production. He pointed out that a huge bridge building program is in prospect for the next 10 or 15 years, and that this, in combination with other markets in which prestressing may become an important factor, promises to open a vast new field for the use of concrete masonry units.

Moisture Determination A new method of determining the moisture condition of concrete block was discussed and demonstrated by Carl A. Menzel, manager of the Housing and Cement Products Bureau of the Portland Cement Association. Using a simple apparatus consisting of a steel container with an inner wire basket, and a removable lid in which were mounted a hygrometer and a small circulating fan, Mr. Menzel showed how the moisture condition of the concrete in the block could be determined and expressed in terms of relative humidity in a period of about 20 minutes. This compares with approximately 72 hours required to complete a conventional moisture determination test.

Mr. Menzel stated that 12 units of the test apparatus have been built and will be loaned to various universities, laboratories and block plants to determine if the method and the results are satisfactory before it is released for general use.

Requirements Code P. H. Thern, senior assistant building engineer for the Wisconsin Industrial Commission, discussed the state's code requirements for concrete masonry. He stated that the code requirement that block be tested once a year, as compared with much longer test intervals for clay brick, is justified on the grounds that personal factors in manufacturing have a more direct bearing on the quality of block. Mr. Thern also pointed out that the code requires that each block be branded in some manner to permit easy identification in the field; in practice, however, the producer is expected to see that only enough branded units are included in each load so that the inspector can identify the source.

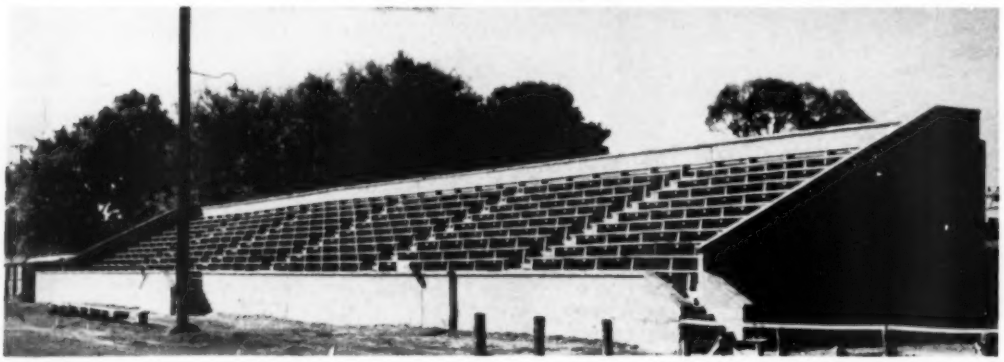
• Two others who figured prominently in the program were Charles W. Yoder, Portland Cement Association, and William J. Shore, Shore Engineering.

The speaker told about the Commission's investigation of the virtual failure of a 3½-acre single-story building of face brick and block backup after only two-years of service. The brick facings of these walls were found to be badly out of plumb, many windows and doors were so badly jammed that they couldn't be opened, and expansion joints had been pushed out completely in a number of locations. Extensive study of the structure finally established that the failure was largely a result of excessive expansion of the mortar used. In future work, Mr. Thern said, the commission will demand that autoclave tests be performed on all masonry cements used.

In the same connection, the speaker mentioned tests that were carried out on mortars used in the construction of ten buildings on the University of Wisconsin campus some years ago. Although specifications called for 1:1:6 mortar on all work, the tests showed a tremendous range in the proportions actually used on the job, and strengths as low as 32 p.s.i. were found.

In discussing the permissible height of 8-in. concrete bearing walls, Mr. Thern stated that the code sets a limit of 12 ft., and requires the use of pilasters not less than 12 in. thick at intervals of not more than 20 ft. There is also a 25-ft. limit on the spans which may be used with 8-in. bearing walls. If it is desired to exceed that limit, the walls must be 12 in. thick, and they may be built to the maximum height of 18 ft. without pilasters. Where the height of the wall exceeds 18 ft., pilasters are required at intervals not exceeding 16 ft. When span and joist space exceed 40 ft. and 4 ft. respectively, the code also requires the use of spandrel beams in the bearing walls, and the use of bond beams is not accepted in lieu of this requirement.

The present code, Mr. Thern said, limits cavity construction to nonbearing walls with the maximum height of 10 ft. He expressed the belief that a concerted effort on the part of block producers in the state would result in a revision permitting cavity construction for load bearing walls. He added that although stack bond walls are not mentioned in the present code, they are now covered by a letter of approval.



• This high school football stadium, described in Mr. Yoder's talk, was built with prestressed beams composed of 12- by 8- by 16-in. machine-made masonry units.

The speaker called attention to the fact that the code now approves only 1,000-p.s.i. units, and raised the question of whether or not it would be desirable also to approve units of less strength for use in interior walls and partition work. If such units were approved, Mr. Thern said in conclusion, it would be on the basis of their being clearly marked for identification.

Curing William J. Shore of Shore Engineering, New York, spoke to the gathering on the subject of curing. He expressed the view that the block industry is most fortunate in that it receives so much assistance from such outside sources as the Portland Cement Association and various universities in solving technical problems. The number of failures in block structures, Mr. Shore said, is relatively small in comparison with the tremendous growth in the use of the product in recent years.

Using direct quotations from several published papers on the subject of curing, Mr. Shore undertook to show that contradictory conclusions are often the result of error in the initial premises from which investigations start, even though the work itself may be entirely sound. In one series of tests, which appeared to show that steam-cured units never reach the strength achieved with 28 days of fog curing, he pointed out that all temperatures were raised to test value in 2½ hours. In this instance the investigators failed to recognize the critical importance of the time factor.

Mr. Shore quoted from a recent British paper concerning tests of concrete strengths under varying steam conditions. The investigator, A.G.A. Saul, reached the conclusion that the most important factor in steam curing at atmospheric pressure is the rise of initial temperatures, reckoned from the time the materials are mixed. The tests indicate that best results are obtained if temperatures do not exceed 122 deg. F. in two hours after mixing, and if the maximum level of 180 deg. F. is attained not earlier than six hours after mixing. Under these conditions it was found that the strength of steam-cured units closely approximated the strengths reached with 28 days of moist curing. More rapid temperature rise reduced the strength values as much as 40 percent.

Mr. Shore believes that the size of cement particles also has an important bearing on the problem. When kiln temperature is increased rapidly, he said, it is more than likely that a flash set takes place over the entire outer shell of each cement particle, rendering useless the portion of cement contained within the particle. With a gradual temperature rise the entire particle takes part in the hydration cycle before the peripheral surface acquires its initial set. High-early-strength cements are affected less by the rate of temperature rise because the particles are much smaller than those which comprise ordinary portland cement.

In discussing the volume change of masonry units, Mr. Shore pointed out that initial shrinkage after manufacture generally takes place within 100 days or less. Subsequent variations, he said, are attributable to moisture and temperature changes, and these factors have a tendency to become cumulative. He believes that temperature variation may actually be the more critical of the two in setting up tensile stresses in excess of the tensile strength of the masonry units in the wall. For this reason, the speaker said in conclusion, there is every justification for recommending the use of both reinforcing steel and contraction joints.

(*Continued on page 154*)

PUSH BUTTON UNLOADING

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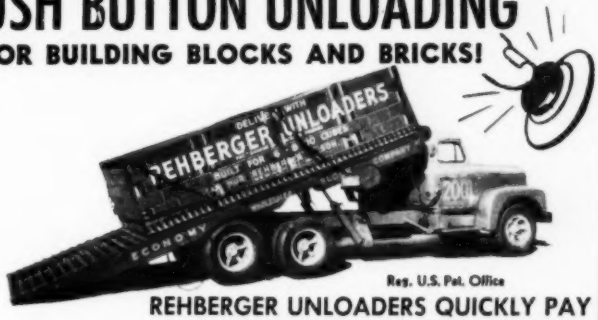

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VEHICLE ENGINEERS FOR 66 YEARS

1,600,000 Units Produced In 1951 By Sioux City Plant

By WALTER E. TRAUFFER

● This view of the Concrete Products Company's plant at Sioux City, Ia., shows the new cement elevator and storage silo.

another ON THE SPOT report

THERE is in the concrete building units industry an almost monotonous sameness in the design and operation of many of the producing plants; this is true to a large extent also of other phases of these operations, such as sales promotion, etc. A similarity in these plants is inevitable, but many producers have adopted methods of control or operation and various kinks which are different and are often of considerable interest to other producers. There is even more room for originality in the business angles involved, and many producers are doing outstanding and interesting jobs. Such an operation is that of the Concrete Products Company, Sioux City, Ia., which has done an outstanding job of selling concrete blocks in an area where local clay tile predominated for many years. This plant produced over 1,500,000 blocks (8-in. equivalents) in 1950 and about 1,600,000 in 1951.

The president of this progressive firm is George R. Batcheller, who started the business five years ago. Vice-president is Lyle Ballantyne, who joined the firm two years ago. R. H. Richarz is secretary-treasurer of the company.

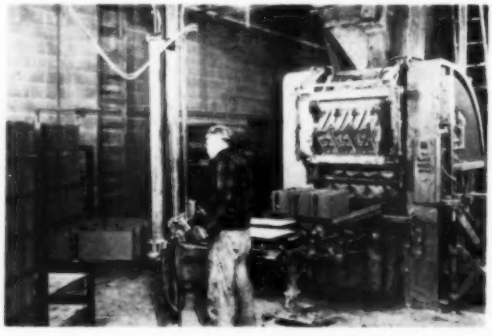
When the present plant was erected in 1946, provision was made for a second machine and adequate steam capacity for such operation. Automatic controls installed in the steam room were in a few months found unworkable, due to steam penetration and resultant shorting and corrosion. In 1950 Universal steam room doors and bulb-type thermometers were installed and they have been quite satisfactory. Other equipment installed in 1950 included a bulk cement system and a Kirk & Blum concrete joist machine. The need for greater machine capacity soon became apparent as demand increased; so in August, 1951, the Stearns No. 9 Joltcrete block machine was replaced by a new Stearns No. 15 machine. By careful planning it was possible to remove the old machine and have the new one in operation within one week. The new installation has increased average hourly output in terms of 8-in. blocks from 500 up to 850, with only one man on the machine instead of the former two. With the new machine it is quite easy to maintain modular dimensions, and the blocks are uniform in every way. On it are being made 4-in. slabs, both cored and solid, 8-in. and 12-in. standards, 8-in. headers, and brick and chimney blocks. All are sold under the trade name "Soo Crete".

Both sand and gravel and haydite aggregates are used, the former being received in trucks and the latter in railroad cars. These materials are discharged into a track hopper of ½-car capacity. A 20-in. belt conveyor and a 60-t.p.h. W. S. Nott Co. belt bucket elevator feeds to a one-compartment, 100-cu. yd. steel bin. Only one of these two materials is stored at one time, a procedure made possible by the availability of sand and gravel locally.

Cement is received in bulk in hopper cars which are unloaded in 2 to 3 hours by a Nott bulk cement handling and storage system which was made to order for this plant. A screw conveyor feeds the cement from the car to a 200-bbl.-per-hr. bucket elevator which discharges it into a 650-bbl. steel silo. Aggregates are discharged from the storage bin through slide gates into a batcher equipped with a Fairbanks Morse beam scale. A screw conveyor feeds cement to another batcher which is equipped with a Howe beam scale and a mercoid switch automatic cutoff. The batched materials are discharged into a 42-cu. ft. Stearns mixer. After 1 minute of dry mixing, water is added from a Niagara meter, and mixing is continued for another 5 minutes after the water is all in. Air-entraining cement is used when obtainable, and 1½% calcium chloride is used all year.

The skiphoist of the original No. 9 Joltcrete machine elevates the concrete into the new Stearns No. 15 fully-automatic, plain-pallet machine, which has all the latest fea-

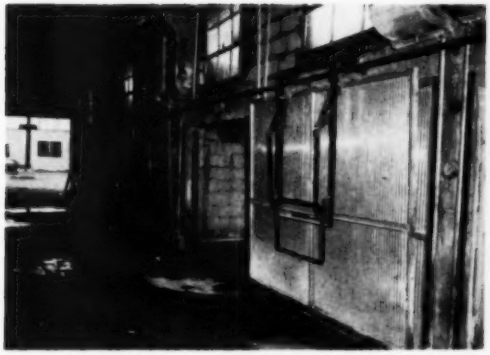
(Continued on page 155)



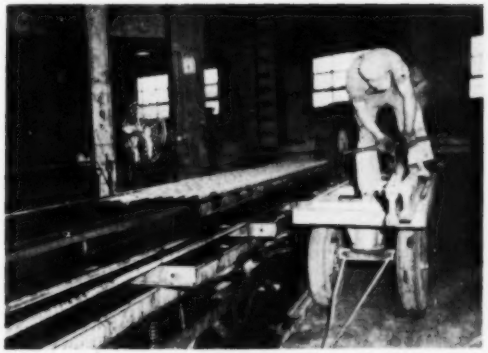
● The new fully-automatic plain-pallet block machine, with pneumatic-magnetic off-bearer and pallet return.

• This attractive farm store in Sioux City was built entirely of "Soo Crete" concrete blocks.

• A 26- by 100-ft. residence, constructed of "Soo Crete" units.



• Special doors and thermometers which make possible the use of a very efficient and economical curing system.



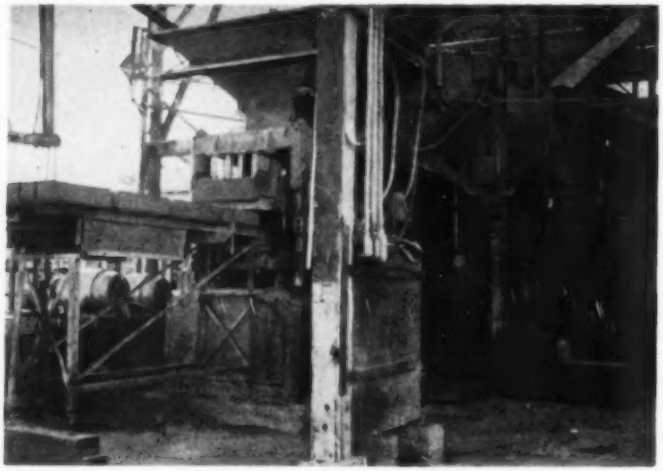
• Joists being transferred from the vibrating table to the cart for removal to the curing rooms.

• Joists being loaded into a truck from the yard by a lift truck.

• A load of 900 blocks is shipped on a late model trailer unit.

Low-Cost Steam Generators Speed Curing for Southern California Block Makers

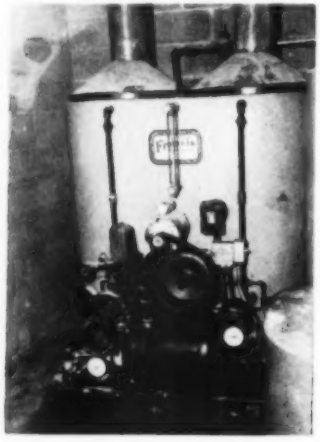
By H. F. UTLEY



• High production is attained at the Precast plant in Long Beach with two automatic machines.

another ON THE SPOT report

A NEW conception of rapid and thorough curing of concrete products with compact steam generators is speedily coming to the forefront in the industry. These units are replacing expensive, less efficient boiler installations on existing kilns, also providing operators who formerly depended upon hit-or-miss yard curing with the dependability of controlled steam curing at minimum cost.



Yard-curing over 4-week periods has been the rule among southern California operators until a few years ago, when two or three blockmakers in the Los Angeles area erected steam-curing-rooms. Opinion now is preponderantly in favor of such practice, representatives of the industry in that area finally realizing that a mild climate is a poor substitute for controlled heat and moisture conditions.

Two leading southern California producers recently erected modern curing rooms and installed Francis steam generators to set up favorable conditions for curing their outputs. They are the Precast Concrete Products Company of Long Beach, and the Mortarless Masonry Corporation of Los Angeles. Both managements are highly pleased with the results. The steam-generating units in each instance cost less than half as much as ordinary boiler installations of similar capacity. Also, the need to employ a licensed steam boiler engineer at about $400 per month is eliminated, while fuel cost remains low since the generators utilize fuel only while steam is being used.

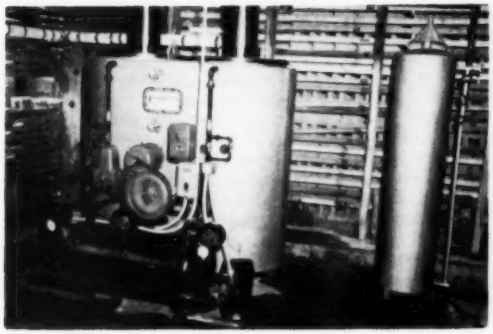
• Left: The steam generator unit at Precast is housed in a small separate room.

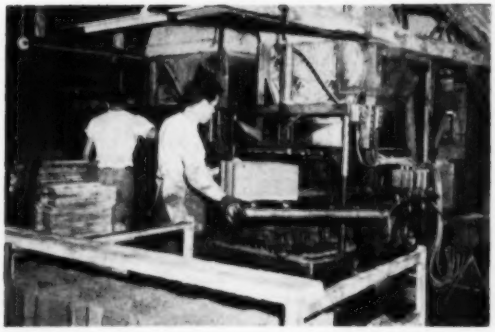
• Right: Insulated pipe behind the Precast kilns feeds steam to each room selectively.

In the late spring of 1951 the Precast plant in Long Beach built four curing kilns and has since added three more. Each of the seven rooms is 14 by 44 ft. in size and 8 ft. high. Walls are of lightweight masonry, and roofs are insulated with rock wool over plaster. The 25-hp. Francis steam generator consists of twin 12½-hp. units and is located in a small separate room adjoining the No. 1 kiln. It is gas-fired, automatic in operation, and gets up a full head of steam in three minutes or less from a cold start. With a water softener in the circuit and a built-in circulating system for emergency de-scaling of the coils, it maintains full efficiency at all times, according to Bruce C. Iliff, owner of the Precast Concrete Products Co. He reports that the Francis generator has given no trouble after nearly 8 months of steady operation, and expects the overall savings to pay for the unit in less than a year.

"The flexibility of the equipment," he explains, "also allows us to increase kiln heat at any rate we desire, and fuel cost has been extremely low due to the fact that the generator runs only when steam is actually needed."

The kilns at the Precast plant each hold 1,560 8- by 8- by 16-in. unit or equivalents, and an average





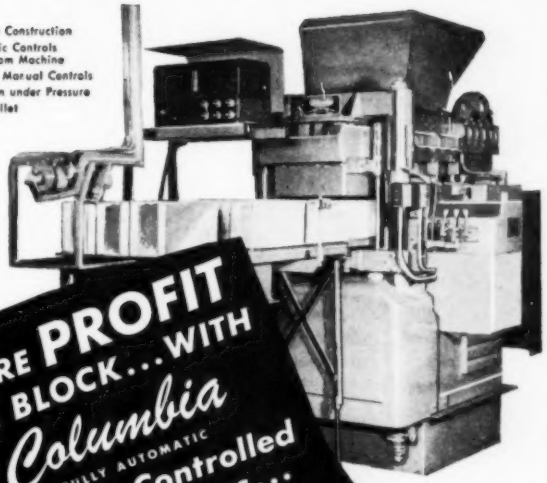
● Above: The generator installation at the Mortarless plant in Los Angeles. The water softener is at the right.

● Right: Two automatic machines produce the interlocking units at the Mortarless Masonry plant.

two-shift day's output is about 16,000 units—slightly more than 10 kiln-loads. Production from the plant's two Columbia automatic machines can fill a kiln in 1½ hrs., after which it is closed and the steam generator turned on. After 8 hrs. in a kiln, with steam utilized only about half the time, the racks are removed and unloaded. Steam valves in each of the kilns are turned on and off manually, the insulated supply pipe running from the generator along the rear ends of the kilns, which have closures at one end only. With the generators there is an even rise of both temperature and humidity. Or, if desired, a relatively dry heat or a completely-saturated steam may be had by simply moving a control at the generator.

The installation at Mortarless Masonry Corporation's Riverside Drive plant in Los Angeles went into operation about December 1, 1951. The Francis steam generator is identical to that just described. This concern, too, had previously yard-cured its output. When it took bids on a 25-hp. regular boiler installation to serve its four newly-erected 15- by 30-ft. curing rooms, it discovered that such an investment would involve about $6,000, plus the employment of a steam engineer at $100 per week. The complete steam-generator installation cost a good deal less than half that amount and is more satisfactory in every way, in the opinion of James R. Briscoe, head of the concern. He is now planning similar installations at his San Fernando Road and Westchester plants in the Los Angeles area. Output at the Mortarless plants is confined to interlocking units produced for the most part on Appley-Yellen automatic machines.

● Compact Construction
● Electronic Controls Away from Machine
● Standby Manual Controls
● Vibration under Pressure
● Plain Pallet



MORE PROFIT PER BLOCK... WITH Columbia FULLY AUTOMATIC Electronic Controlled Block Machines...

4 TO 6 CYCLES A MINUTE WITH Columbia AUTOMATIC CONTROL

LOW COST initial investment backed with low cost maintenance and rugged dependable construction means a wider margin of profit for the operator. Fully automatic with electronic controlled valves offers a flexible operation obtained in no other machine. Compare Columbia feature for feature... you'll buy Columbia!

Look at these features:

● Electronic controls... away from vibration yet within easy reach of the offbearer. ● Rugged, dependable plain pallet machine. ● Electronic controlled valves afford unheard of flexibility. ● Finger tip controls allow 4 to 6 cycles per minute. ● If necessary, manual operation instantly available. ● Vibration under pressure with electronic controlled oscillation and timing of the feed drawer. ● Blocks ahead of any machine of comparable production capacity! ● Approved and proven by successful operators throughout the country!

Write home office for name and address of sales representative in your area.

Columbia MACHINE WORKS

107 S. GRAND AVE. VANCOUVER, WASH.

The steam generators mentioned were built, engineered, and installed by the Francis Steam Generator Company of Bellflower, Calif. The concern is a pioneer in the field, having been manufacturing commercial steam generating equipment since 1910.

Irions Concrete Block Co.

(*From page* 145)

Last year, operating 9 hours a day for 5 days and 8 hours on Saturday, the Irions plant turned out a little over 2,000,000 8-in. equivalents. The company's production with a single machine operating on a single-shift basis is believed to be among the highest in the block industry.

The problem of quality control receives close attention at all times. Materials, gradation, and formulation are under constant scrutiny, and end results are carefully checked by regular determinations of compressive strength. Block, as well as concrete cylinders made at the company's nearby ready-mixed-concrete plant, are broken with a 100-ton Yoder concrete testing machine. It is believed at Irions that only by thus maintaining the quality of its product at a uniformly high level has it been possible to market a considerable portion of output in areas so remote from the plant.

In addition to a full line of popular types and sizes of masonry units, the Irions company produces such special items as precast sills and lintels, and machine-made chimney block and patio units. As a service to customers, Kewanee basement windows, Spray-O-Bond, and similar products related to concrete masonry construction are carried in stock.

A Clipper masonry saw is used for making certain specials, and for cutting down the small number of culls which accumulate over a period of time. According to the plant superintendent, it is not at all unusual for the plant to produce fewer than a dozen culls in an entire day.

The block plant at Chillicothe was originally an adjunct of the Chillicothe Gravel Company, which built a small plant in 1938 near the present site. Although the two are still under the same ownership, the present block plant has been operated as a separate entity since 1946, when large-scale production was begun. In 1948 the owners purchased a modern high-capacity ready-mixed-concrete plant in Peoria. This operation is conducted under the name of Irions Quality Concrete Company.

Including the sales force and office personnel, the entire block plant operation involves about 22 men. Jacob H. Irions is president of the company, and also of the Chillicothe Gravel Co., and his wife is vice-president and treasurer. John W. Mundy is secretary and office manager of the block firm, and Gould Oakes is plant superintendent.

Wisconsin Concrete Products

(*From page* 149)

Business Forecast The final talk, *What's Ahead in Business for* 1952? was presented by Dr. Francis Calkins, professor of finance at Marquette University. This speaker showed some of the inconsistencies between the goals indicated in the President's recent message to Congress and the apparent capacity of the national economy. Viewed from the standpoint of government income alone, Dr. Calkins said, the proposed program would require an $80,000,000,000 tax load, or an increase of about $15,000,000,000 over the present rate. An increase of such magnitude, he stated, is most unlikely in an election year.

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UNIT 1520
Mobile Crane

*Terrific Value...
IN EVERY CHANNEL OF OPERATION!

Here is another UNIT Star with an enviable record of performance on materials handling jobs everywhere. It's a self-propelled Mobile Crane that rides on rubber and is so easy to handle — the ULTIMATE in modern, high-speed mobile equipment. Mounted on 12 pneumatic tires, with duals on both steering axles and tandem rear axles. An air-operated transmission provides four travel speeds in either direction with a range up to 13 M.P.H. Rugged, heavy duty construction and balanced weight distribution assure maximum stability. Get the facts. Write for Catalog No. 502.

Select
Your Favorite
UNIT Star

★ UNIT 357 Mobile Type ½ Yard Excavator Crane up to 9 tons.
★ UNIT 614 Crawler Type ½ Yard Excavator Crane up to 8 tons.
★ UNIT 1020 Crawler Type ⅝ Yard Excavator Crane up to 10 tons.
★ UNIT 1520 Mobile Type ¾ Yard Excavator Crane up to 20 tons.
★ UNIT 1014 Truck Crane ½ Yard Excavator Crane up to 12 tons.
★ UNIT 152OT Truck Crane ¾ Yard Excavator Crane up to 20 tons.

All Models Convertible to ALL Attachments.

Send for a UNIT "TV SET"
You'll like this novel UNIT brochure. It portrays the complete UNIT line and illustrates the 10 reasons why UNIT is a better machine. Write for your copy today. There's no obligation.

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A 6005-½I-C

Dr. Calkins expects that incomes will increase in 1952 to the level of perhaps $280,000,000,000, and that consumer price levels will go up about 5 percent. He believes that by the end of the year there will be definite shortages in some lines of consumer goods, and that as a result there is a good possibility that there will be a certain amount of scare buying. He predicted that approximately 850,000 new homes will be started this year, and that there is likely to be some unemployment in the building trades.

Taxes, the speaker said, will in all probability be higher and harder to pay in 1952, but there is some prospect of a little relief in 1953. For too many years, Dr. Calkins said, we have been borrowing heavily from the future in order to make the present agreeable. He believes that the best cure for the resulting economic ills would be a policy of restoring incentives as soon as defense spending begins to taper off.

Concrete Products Company

(*From page* 151)

tures. A Stearns pneumatic magnetic offbearer transfers the blocks (6 at a time for 8-in. standards) to 72-block racks. An Erickson platform truck has been used for some time for handling racks in the plant, and a Clark fork truck has been used in the yard. When the new block machine was installed, additional handling capacity was required, and a second Clark lift truck was purchased.

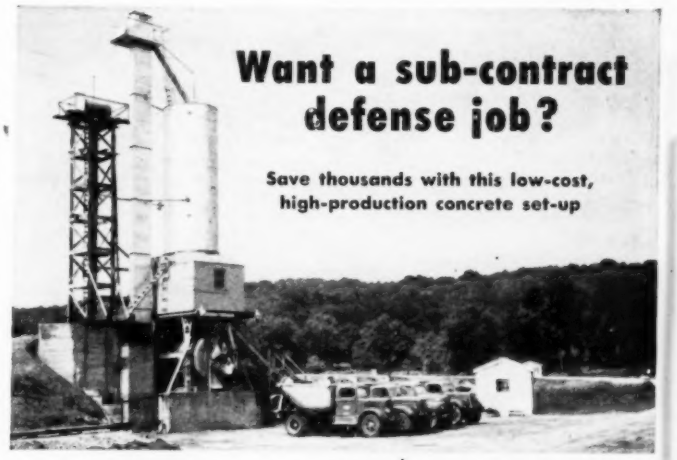
There are eight curing rooms, each 8 by 40 ft. and 7 ft. high, with a capacity of 14 racks (1,008) each. They have concrete block walls and flat concrete slab roofs covered with tar and gravel roofing. They are open at the inside ends only and are equipped with Universal doors and carrying equipment, and individual outside thermometers. The original system of curing being used here involves bringing a room up to a predetermined temperature (usually 170 deg. F.) after it is filled. This takes from 1 hr. 45 min. to 2 hr. 45 min. depending on whether the kiln is warm or cold. The steam is then shut off, and as the temperature drops, the relative humidity rises, soaking the blocks until they are removed the next day. Steam is provided by a Bos 125-hp. high-pressure fire-tube boiler with an automatic stoker.

This system has given excellent results, producing blocks with a compressive strength of from 1,250 to 1,500 lb. after seven days. Credit for these results is given to the curing system made possible by the Universal doors and to the use of accurately graded sand and gravel with a fineness modulus of 3.50. The average gradation is as follows:

5 percent retained on ⅜-in. screen
12 percent retained on No. 4 screen
28 percent retained on No. 8 screen
45 percent retained on No. 16 screen
70 percent retained on No. 30 screen
90 percent retained on No. 50 screen
99 percent retained on No. 100 screen.

Equally good results are obtained with haydite blocks, which form about 20 percent of total output. The sand-and-gravel blocks have a shipping weight of about 42 lb.; the haydite blocks weigh 26 lb.

Concrete joists are made ten at a time on a 24-ft. Kirk & Blum vibrating table, in lengths up to 16 ft. for 8-in., and 20 ft. for 10-in. joists. Ready-mixed concrete is used for these as well as for lintels. Finished joists are slid off the table onto a pneumatic-tired cart of the company's own design which is left in



Want a sub-contract defense job?

Save thousands with this low-cost, high-production concrete set-up

Keep your eyes open. Any day now you'll hear of a big defense job nearby. They'll need a lot of concrete—perhaps more than your annual production. You can get this business. Do it like Richter of Cincinnati.

He bid low on a new power plant near him, but too far to supply from his plants. So he built the low-cost hillside central mixing set-up shown above. Note the bulk cement bin, elevator and ramp at rear where batch trucks dump directly into 3-yard mixer. This simple set-up saved him money.

But his big saving came from using four Dumpcretes instead of transit mixers. These concrete bodies cost less to buy, to run and to maintain.

They gave him top production—up to 500 yards on an 8-hour shift. Dumpcretes dumped directly into buckets, forms and piling. Their downtime and maintenance was practically nil, because of their simple, rugged construction.

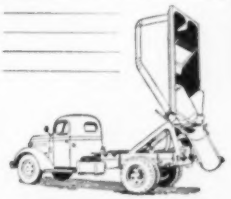
When this job was finished he moved the whole set-up to a larger job—60,000 more yards. What more can you ask . . . low investment, portability from job to job, increased production, customer satisfaction, and the pay off—greater profits. Send for the complete story today.

Please send booklet "12 Ways To Set-Up For Central Mixing."

Name_____

Firm_____

Address_____



DUMPCRETE

DIVISION

MAXON CONSTRUCTION COMPANY, INC.

618 Talbott Bldg.
Dayton 2, Ohio

EARLY DELIVERY ON CERTAIN MODELS — ORDER NOW!

COMMENT

from the

BUTLER ENGINEER

February, 1952

Priorities...and we must read Japanese yet!

Ah me! These priorities. A fella called up long distance. Had to have a Butler Ready Mix Plant, not next month, not next week, but as of NOW.

"Look! he said, his voice shaking with intensity. "I've got a Directive — a DX Priority!"

Ah me, again! A DX Priority gets anything—absolutely anything—except steel, aluminum or copper. A DX is for some lad with 10,000 army trucks, all complete and ready for shipment except for door handles. It will get those handles *immediately*—if they're made of papier maché.

•

One of our distributors vacationing in a foreign land heard of a construction job nearby. Building a foundation for an enormous catalytic petroleum cracking plant. Cost: 7 million dollars per copy. So, he went out to watch the work.

He found a crew of men dumping bags of cement into a rock crusher. What goes on? "The cement — she is got hard. We break it up to mix."

A 7 million dollar structure on foundations built with air-set cement!

Our distributor got hold of the big boss in time. But the grapevine carried the news of Trouble (with a capital T) to the foreman who took off like a rocket in a jeep and didn't show for two weeks.

•

We've had spec drawings with all notes in Greek, Turkish and Swiss but now comes a set in Japanese! Are we linguists or engineers?

Much more of that and we'll extend a cordial invitation to the United Nations to settle in Waukesha—except Mr. V——, that is.

See you soon.

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

the curing room and later takes the joists to the yard. One of the lift trucks is used to load joists from the yard into trucks for shipments. These lift trucks also cube and yard the blocks. There is storage space for about 300,000 standards.

The company gets excellent distribution through its 80 dealers, 14 of whom are located in Sioux City and the others in the surrounding area. These make possible shipments for 45 to 50 mi. in each direction except west, where 125 mi. is the usual limit. Some return loads are hauled for over 200 miles by livestock truckers. The company operates several trucks, including a late model International trailer unit with a capacity of 900 standard blocks.

Kerr Concrete Pipe Company Installs Quality Control Lab

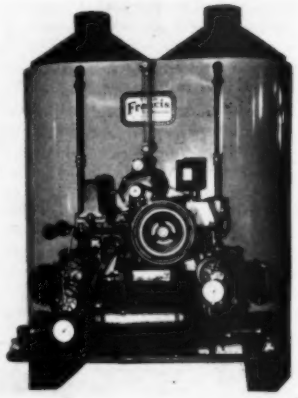
A new quality-control laboratory, designed to improve the final product and at the same time reduce production costs, has been installed by Kerr Concrete Pipe Co., 469 Market St., East Paterson, N. J. Kerr has been in business 21 years producing a full line of sewer pipe in sizes from 6 to 90 inches and above. Present capacity of the plant is 175 cu. yd. per day—both cast and machine-made pipe. The laboratory is now an integral part of plant operations and insures production of a high-quality product under all operating conditions.

Daily performance tests are made on all materials going into the batch and on the finished pipe. Aggregate moisture tests, sieve analyses, and cylinder tests are taken every day. This enables the plant operator to make adjustments compensating for any slight variations in the materials supplied to the plant.

The laboratory, installed in a new building, includes an 8- by 10-ft. moist room. Two 12-ft. benches and a large table in the center of the room provide adequate waist-height work areas. All equipment necessary for testing the aggregates, cement, and the finished product is provided. Major units include the following: a Yoder 100-ton hydraulic

• A corner of the Kerr laboratory showing the scale and the testing machine.

FRANCIS UNIT STEAM GENERATORS



★ LOWER Curing Costs

★ SPEED Curing Time

★ Do a BETTER CURING JOB!

- Initial investment and operating cost only half that of conventional boiler of same rated horsepower.
- Fully automatic; steam in 3 minutes from a cold start; no steam engineer required.
- Twin steam units provide constant stand-by protection.
- Heat and humidity under constant control, permitting balanced heat and moisture, relatively dry heat only, or a saturated steam as desired.
- De-scaling system keeps coils clean and at full operating efficiency.
- Praised by concrete-block operators who say, . . . "overall savings will pay for equipment in less than one year.

WRITE FOR THE FACTS TODAY!

Francis Steam Generator Co.

10202 E. Artesia Blvd.

Bellflower, Calif.

Many CONCRETE PRODUCTS FIRMS *Use* HYSTER® 20 Lift Trucks

HYSTER 20 (2,000 lbs. capacity) comes in 6 model variations. The complete Hyster line has capacity ranges from 1,000 lbs. to 30,000 lbs. Write for literature.

MATERIALS HANDLING SUPERVISORS like the Hyster 20 because it transports fast, stacks high, gets in and out of tight places, rolls on pneumatic tires; is rugged and powerful.

OPERATORS like it because Hyster steers easily, carries and lifts loads smoothly, takes indoor and outdoor jobs in stride.

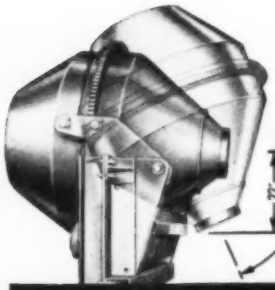
MANAGEMENT likes it because Hyster deals a low blow to materials handling costs — slashes manufacturing and warehousing overhead and adds to net profits.

See your Hyster dealer for an eye-opening demonstration and a list of owners. Or write for literature.

HYSTER COMPANY

THREE FACTORIES

2926 N. E. CLACKAMAS, PORTLAND 8, OREGON
1826 NORTH ADAMS ST., PEORIA 1, ILLINOIS
1026 MEYERS STREET... DANVILLE, ILLINOIS



TILT-UP

CLEAN UP with

FOR CONVERTING TO CENTRAL MIX
As it requires less headroom, the TILT-UP SuPREMIXER is the only mixer feasible in most plants. It's easy to install, no raising of the plant or lowering of drive.

FOR A PACKAGE PLANT
Reduced headroom requirement means reduced height, construction and power costs. Efficiently permits dry batch in one lane, central mix in the other.

FOR A SEMI-PORTABLE PLANT
Crane feeding is easy with SuPREMIX. Separate A-frame mounting with bin structures bolted for quick, easy set-up provide real flexibility for your rush defense jobs.

Only the SuPREMIX TILT-UP, 3-3½ yard hydraulically controlled mixer can give you *all* these advantages: lower headroom requirements—steeper discharge of 65°—no segregation—reduced thrust—and virtually fixed discharge. The hydraulic system is part of the unit—no costly compressor to buy. The unique features of this mixer make it the ideal mixer...

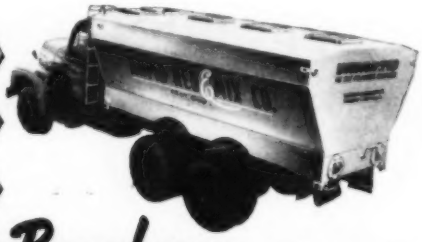
New TILT-UP Bulletin shows complete details; write today.

SUPREMIX
ADRIAN MICHIGAN

400 GRACE ST. • ADRIAN, MICH.

An Affiliate of GoCorp

GUARANTEES DELIVERY
REDUCES INVENTORY
PREVENTS SHUTDOWNS
ELIMINATES BAG COSTS
BREAKS RAIL SITE LIMITATIONS



Baughman "Hi-Speed" BULK CEMENT TRANSPORT BODIES

Break the bonds of rail shipment restrictions! Stop undependable deliveries . . . the limitation of plant location to rail sites . . . the cost of bags, bagging and unbagging. Eliminate the necessity for larger inventories to tide you over when rail shipments fail to arrive.

Save money, labor, time . . . handle cement IN BULK! Self-Unloading Baughman transport bodies are designed and built for high speed, low cost loading, hauling and delivery. Full range of sizes and capacities for truck, trailer and semi-trailer — there's one or more perfectly fitted to YOUR REQUIREMENTS.

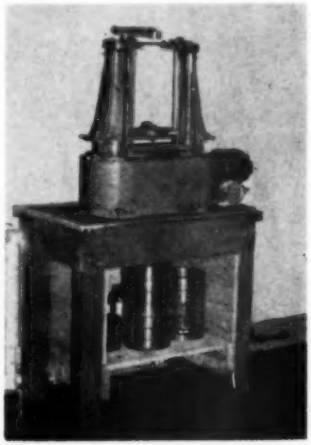
● *Call, wire or write for details. No obligation. More than 25,000 Baughman Self-Unloading Bodies in use from Coast to Coast.*

BAUGHMAN

BAUGHMAN MANUFACTURING CO., Inc.
1021 Shipman Road, Jerseyville, Illinois

"There is a Baughman Distributor Near You"

press for cylinder and block tests; a Ro-Tap machine and complete set of Tyler sieves for analysis of fine and coarse aggregates; an American Instrument Company gravity-convection oven with a temperature range up to 180 deg. Centigrade; and apparatus for physical cement tests (Vicat and Gilmore Needles, etc.). A Muller 3-cu. ft. mixer is kept in an adjacent room for making up trial batches of new mix designs. The Kerr outfit caps test cylinders with 75 percent sulphur and 25 percent Silex, using an American Instrument Co. capping machine.



● A closeup of the vibrator in the Kerr laboratory.

Cylinder racks line two walls of the moist room. Radiant heating coils are installed in the floor of this room to keep temperatures within A.S.T.M. limits at all times. Continuous "fog" is supplied through two spray nozzles set near the ceiling.

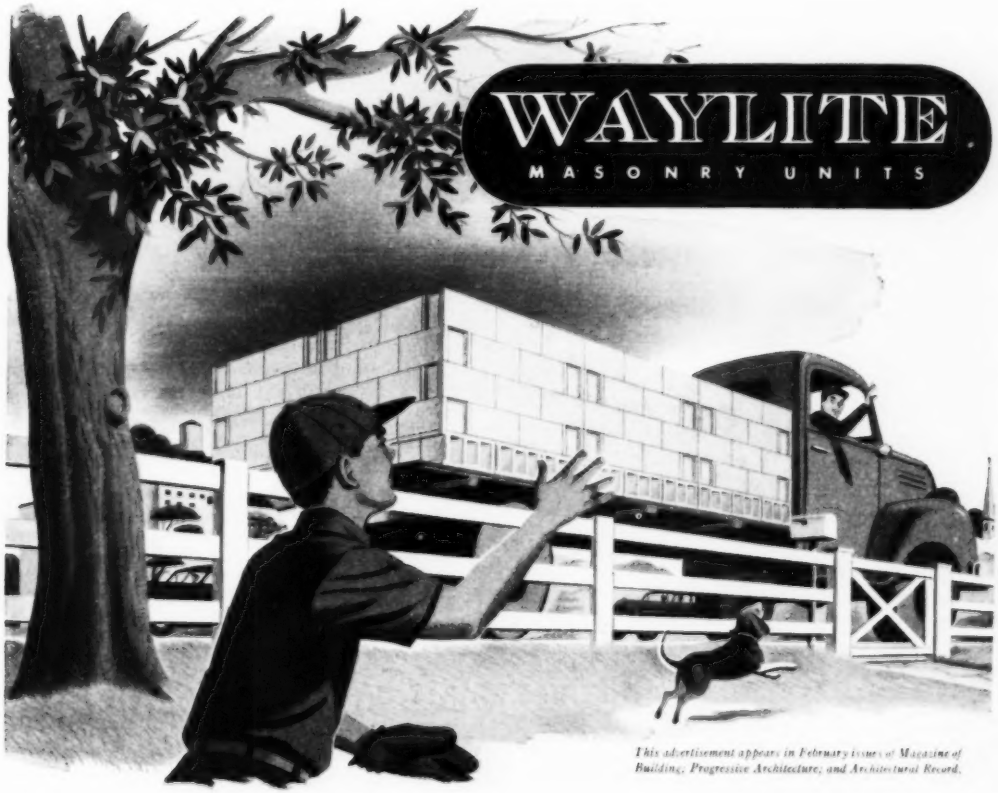
The laboratory has two prime functions: It will insure the manufacture of a product consistently conforming to specifications and thereby eliminate rejects; and it will enable experimental testing of new mix designs to improve the product and at the same time reduce the cost of manufacture. In the very short time the laboratory has been in use, it has enabled Kerr to reduce the cement factor while maintaining or increasing strength by proper proportioning of the aggregates. Over a period of years these cost-saving features will more than pay for the lab and its operation.

Direct mail advertising material produced during the last year by The Celotex Corporation, makers of Celocrete, was judged best in the building materials industry in the Direct Mail Advertising Association's 23d annual competition. Award winners were announced during the association's annual convention at the Schroeder Hotel, Milwaukee. This is the third consecutive year that Celotex advertising has won the D.M.A.A. "Best of Industry" award.

A SALUTE TO THE Concrete Masonry Industry

ON ITS FIFTH SUCCESSIVE BILLION-PLUS YEAR

The remarkable record of the Concrete Masonry Industry during the past five years in producing the equivalent of over Six Billion sq. ft. of 8″ Masonry Wall Units has few parallels in building industry history. . . . This production has been equal to about two-thirds of all masonry walls built in the United States during this period. . . . This unprecedented growth of the Concrete Masonry Industry has been the direct result of the quality, utility and economy of concrete masonry walls, and the superior service of progressive locally-owned companies. . . . The Waylite Company is proud to be a part of such an outstanding industry in the construction field, and this seemed to be a good time to say so. . . .



This advertisement appears in February issues of Magazine of Building, Progressive Architecture, and Architectural Record.

PRODUCTION TESTED!

Blockmaster #3

High Production · Fully Automatic · Hydraulically Powered

The Multico Blockmaster No. 3 is now ready for *your* plant—after three years of production testing in many plants. Producing three blocks per cycle, it is a completely automatic machine, requiring labor only to off-bear block. Hydraulic power from a separate unit provides smooth, quiet operation and serves additional machines in future expansion. The compression action combines pressure, vibration, and tamping, for perfect blocks. Plain pallets are used in making any size or style of block with any aggregate.

Both the Blockmaster No. 3 and the newly modified No. 2 have 50% less moving parts than any other machine in their capacity classes. This means an absolute minimum of maintenance.

Make this proven Blockmaster No. 3 your next machine; call or write for further information.

Multiplex Machinery Corporation has been making concrete production machinery for over 40 years. Our engineers will help you plan your plant expansion. We can show you how Multiplex automatic block machines, mixers, skip hoists, and compartment aggregate bins can make your operations more profitable.

MULTIPLEX MACHINERY CORPORATION

ELMORE • OHIO

The added payload earns more for Jaeger owners

Jaeger engineering has eliminated as much as 1600 lbs. dead weight from truck mixers*, cut their loading time to only 10 seconds per yard, shortened discharge time to 20-25 seconds with 4" slump material, only 60 seconds per yard with 1" slump—and cut by 50% the usual time and cost of maintenance.

Hauling full payloads, on faster schedules, Jaeger truck mixers consistently produce more yardage—earn more profit for their owners—and for that reason outnumber all other truck mixers in use today.

**Engineered, not stripped, to save weight.* No reduction in thickness of drums, blades and load-supporting members.

THE JAEGER MACHINE COMPANY, 602 Dublin Avenue Columbus 16, Ohio

AIR COMPRESSORS • PUMPS • MIXERS • HOISTS • TOWERS
AGGREGATE SPREADERS • BITUMINOUS PAVERS • CONCRETE SPREADERS, FINISHERS

Where light weight means everything, Jaeger offers new "MIX PLUS" 3—4½—6½ yd truck mixers

For localities where severe load restrictions may otherwise limit profitable payload, Jaeger's flexible "Mix Plus" design offers all the proved advantages of the fast-charging and discharging Jaeger drum, with its famous dual-mixing action, plus choice of any of the following equipment to meet requirements:

(1) Open-type end loader with controlled discharge gate for use where minimum weight is most important, or (2) End loader with perfected seal for agitator service or hauling maximum payloads under dry batch operation, or (3) Quick removable top door and sealed discharge door for use as top-loading agitator. One turn of hand wheel fully opens either the sealed door or sealed end loader; one 24" movement of a hand lever fully opens the open-type end loader. Built-in pressure lubrication of sealed end loader positively protects against grout and flushes the seal every time it is lubricated.

"Mix Plus" design offers 3-way choice of Continental engine, Chrysler engine with fluid drive or power take-off adapter for truck engine drive, plus a selection of transmission types on engine-equipped models. All controls operate from the ground, with dual front and rear controls of throttle, clutch and gear shift.

You also have a 3-way choice of unit without water system, or with 2-compartment tank with either automatic or sight gauge measuring, or with single flush tank. Jaeger's high pressure water injection system delivers 60 gpm at 65 psi through grout-proof water jet in drum and to wash-out hose, or choice of either.

Mudguards and catwalks assembled as one unit, and latest 3-piece "Swing Away" chute, are standard. For full details, see your Jaeger distributor.

What is Your PROFIT PER BLOCK?

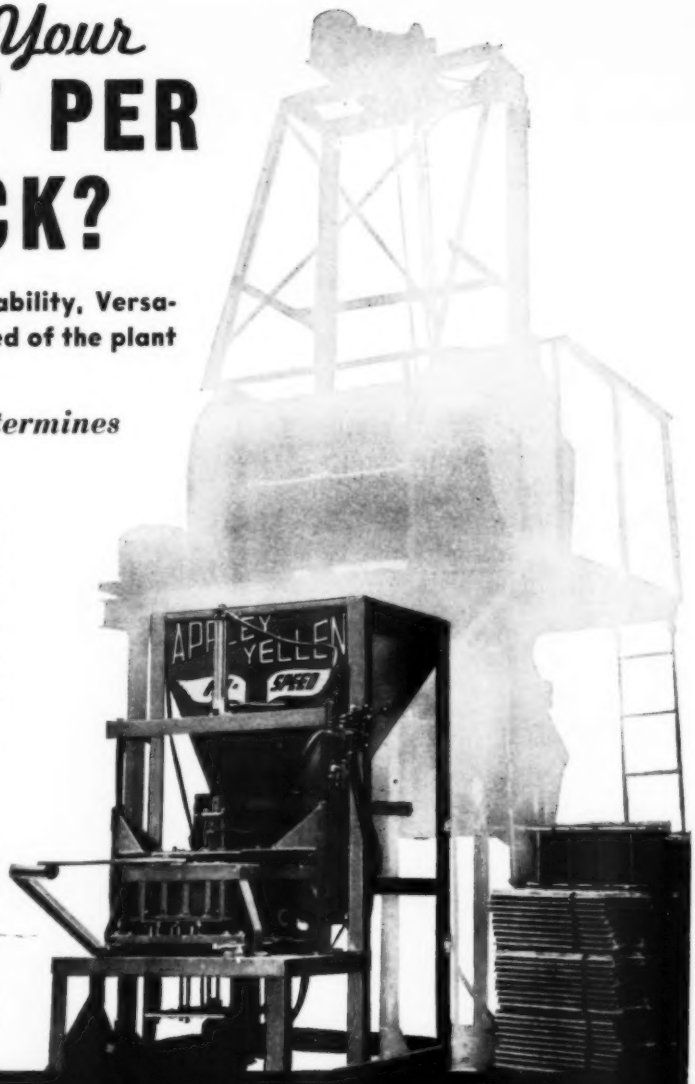
Profit depends on Durability, Versatility, Quality and Speed of the plant you operate.

No single factor determines profit

For most profits, you want the machine that is **versatile** — able to change over quickly to meet a variety of specifications — ready at once to produce blocks that sell because of their **beauty.** At the same time your equipment must be **durable** — work with least maintenance and fewest breakdowns. All these points determine **speed** of production. How many blocks per hour per man is important in your business?

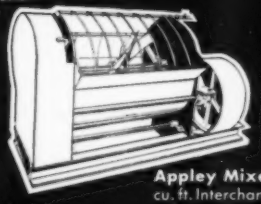
The Appley-Yellen Block Machine offers **speed, versatility, quality** and **durability.** It has years of proved operation — guarantees you more profit per block.

Write today for information on how you can make more profit per block. Our representative will gladly help without obligation to you.



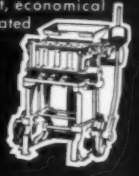
APPLEY-YELLEN ALSO OFFERS:

Appley Skip Hoist -- sturdy, dependable. Fast, accurate loading. For 14 or 28 cu. ft. mixer -- on ground or above machine.



Appley Mixer -- 14 or 28 cu. ft. Interchangeable lining. Rubber-covered blades.

Appley Little Giant Slump Block Machine -- efficient, economical hand-operated



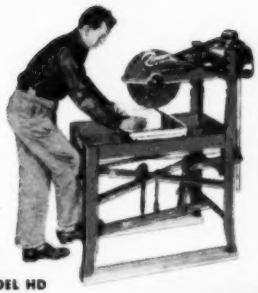
MISHCO CORPORATION • **615 S. W. 2nd AVENUE** • **MIAMI, FLORIDA**

New!

CLIPPER "CONVERTIBLE" MASONRY SAW

•

FIRST you buy a CLIPPER MASONRY SAW *and* Then at any time you can add the "CONVERTIBLE" CART



① MODEL HD used as DRY MASONRY SAW

③ MODEL HD "CONVERTIBLE" CART used for SAWING CONCRETE

Four Entirely Different Ways to Profit with Handy CLIPPER "CONVERTIBLE"

④ MODEL HD "CONVERTIBLE" CART used for TRACK SAWING

② MODEL HD used as WET MASONRY SAW

SO MANY WAYS TO USE IT...

You Can Save Money on Any Size Job!

With the Model HD you can cut . . . Glazed Tile, Concrete Block, Flooring Tile, Face Brick, Stone, Glass, etc., but in an instant you can "convert" to sawing patches, trenches in building floors, walks, or runways by placing the cutting head on the "CONVERTIBLE" CART. No more fractures beyond removal lines—no more spalling.

But wait . . . if you have bulky stone slabs, pre-cast stone, transite sheets or plywood and masonite to cut . . . just place the "CONVERTIBLE" CART on tracks and operate as a TRACK SAW!

MAXIMUM ECONOMY in MASONRY CUTTING ONLY POSSIBLE with these EXCLUSIVE CLIPPER FEATURES

SELECT-A-NOTCH
● One man easily adjusts Cutting Head to desired height . . . Whether cutting 12" or 1" material. Operator's hands merely guide. Weight supported by rear Bar.

PRESSURE EQUALIZER
● Makes your blades last longer . . . Because Equalizer Spring automatically cushions blade pressure whether cutting HARD or SOFT materials. Outstanding for blade economy.

ADJUST-A-CUT CONTROL
● Pull the knob—and the Cutting Head is free for finger-tip setting at any desired angle. Release the Knob—and Head is locked in the desired position.

SAVE-A-BLADE DIAL
● Just turn the Save-A-Blade Dial to the material hardness and the Pressure Equalizer Spring automatically sets the tension—guarantees faster cutting and longer blade life.

Try it yourself... ON FREE TRIAL

Order TODAY . . . on FREE TRIAL. Discover for yourself how Clipper will increase production . . . cut costs . . . increase profits. Only through the Clipper FREE TRIAL are you guaranteed . . . ACTUAL TEST on the JOB . . . FULL SATISFACTION . . . NO OBLIGATION! . . . If you prefer, order your Clipper Masonry Saw now . . . and the Clipper "Convertible" Cart when the need arises.

One of Nine Models from $265

Clipper

KANSAS CITY 8, MISSOURI

PITTSBURGH, ST. LOUIS, CLEVELAND, INDIANAPOLIS, DETROIT, HOUSTON, AUSTIN, TEX., CHICAGO, LOS ANGELES, PHILADELPHIA, SAN FRANCISCO, CINCINNATI, NEW YORK, ATLANTA, WASHINGTON, D.C., BOSTON, BIRMINGHAM, KANSAS CITY

"COAST-TO-COAST"

GENUINE CLIPPER BLADES—ALL DIAMETERS

DRY-WET & B-R BLADES

DIAMOND BLADES

MAIL THE COUPON TODAY!

Serving the World as the World's Largest Manufacturer of Masonry Saws

CLIPPER MANUFACTURING COMPANY
2801 S.E. WARWICK • KANSAS CITY 8, MO.

Send FREE Information and Literature on:

☐ NEW CLIPPER MASONRY SAWS ☐ CLIPPER CONCRETE SAW
☐ DUSTLESS Model HD ☐ FREE TRIAL 90

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Every issue of PIT AND QUARRY is full of information you can use in your business. It gives you practical ideas on every phase of your operations.

To keep its readers fully informed, PIT AND QUARRY taps every source. Our field editors travel more than 30,000 miles a year to describe the processes and methods used by the outstanding plants making your type of product. Government activities affecting the field are interpreted so that you can better adjust your business to their regulations. Complete reports of all important conventions are published in PIT AND QUARRY. The new equipment and supplies which may make production more efficient are announced in each issue.

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2-32

Used in concrete like sand

. . . but

What a difference PERMALITE makes!

QUALITY CONTROLLED
Bag After Bag

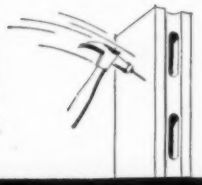
Lightweight precast concrete products are big news in the building industry. They speed construction; cut transportation costs, too.

Permalite lightweight aggregate fits right into this picture. With Permalite you can easily precast variously shaped wall panels, floor or roof slabs, building blocks that are lighter, fire resistant, are more insulating — *that can be sawed or nailed like lumber!*

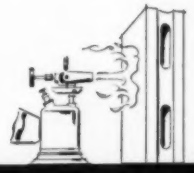
Furthermore, Permalite is a superior lightweight aggregate for transit mixing. Requires minimum cement-water ratio, has less drying shrinkage — doesn't crack with temperature change or curing.

We'd be happy to put our technical knowledge of Permalite at your service. Write for complete information. Great Lakes Carbon Corporation, 18 East 48th Street, New York 17, N. Y. Dept. 21-3

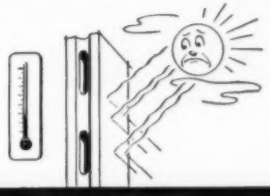
LIGHTWEIGHT
⅔ lighter than sanded concrete!



WORKABLE
can be sawed or nailed!



FIRE RESISTANT
maximum fire rating — up to 4 hours!



INSULATING
20 times the insulation of ordinary concrete!

Permalite®

THE LEADING PERLITE AGGREGATE

A Building Product of Great Lakes Carbon Corporation and its Exclusive Permalite Licensees

Have You Load Limit Problems?
Solve Them with SMITH *LOADLIMIT* Truck Mixers

Are your present concrete prices based on bigger payloads than today's highway laws permit? If they are, you may find the answer to your problems in Smith LOADLIMIT Mixers.

Smith 6½ cu. yd. LOADLIMIT Transit Mixer discharging into a concrete bucket. Note all discharge operations are performed by driver while he is standing on the ground. No need for climbing up on machine.

LIGHTEST WEIGHT in a Really RUGGED Mixer!

Smith LOADLIMIT models were designed to lick your weight problem, but without any sacrifice in sturdy working parts. They have the same trouble-proof transmission, the same Manten steel drum, the same bevel gear drum drive and the same oil type clutches that have made Smith the first choice in truck mixers all over the United States. You save a lot of weight through Smith's exclusive design. The patented feed chute . . . patented charging cone . . . and patented T-shaped blades make it possible for you to operate a Smith LOADLIMIT without a closing door. And by removing chute lifter, sign panels and operator's platforms — *all parts unnecessary to mixer operation* — there is an additional saving in weight.

GET THE FACTS — A new LOADLIMIT Bulletin No. 251 is just off the press. It tells you how you can meet highway weight limits with Smith LOADLIMIT models. Write for copy.

THE T. L. SMITH COMPANY, 2887 North 32nd St., Milwaukee 45, Wis., U. S. A.

SMITH
THE T. L. SMITH CO. MILWAUKEE, U.S.A.

CONCRETE MIXERS

For BIGGER and BETTER Concrete Mixers and Truck Mixers . . . LOOK TO SMITH

HELP WANTED

Plant Manager with Stearns 15 Cement Block Machine experience to take full charge of plant. Good salary and bonus.

BOX NO. H 36, c/o Concrete Manufacturer
431 S. Dearborn St., Chicago 5, Illinois

WANTED

Good used Stearns No. 7 Joltcrete or Clipper with pallets, racks, motors, mixer, skip, crusher, will buy complete plant or separate items, state best cash price.

LEON RAMELLA
658 Stewart Street Welch, West Virginia

WANTED

Complete Attachment for a Besser Machine an 8x8x18 and a 6x8x18 header block attachment. — Write:

OLIVER MANUFACTURING SUPPLY CO.
1679 Elizabeth Avenue, Rahway, New Jersey

Used Cement Batcher

Want 1500 lb. capacity. Also, want water metering Tank for Ready Mixed Plant.

Box 243, Griffin, Georgia

CEMENT COLORS

Write for free samples and prices of "LANSCO" CEMENT COLORS produced in 34 attractive shades. Packed in bulk and in 1 lb. and 5 lb. packages.

manufactured by
LANDERS-SEGAL COLOR CO.
71 Delevan St. Brooklyn 31, N. Y.

FOR SALE

One new Dunbrik machine having been used only to manufacture 40,000 bricks.
1000 Plates.
10 Brick Racks.

KORPACK CEMENT PRODUCTS CO., LTD.
154 Wellington Street Trail, B. C., Canada

100,000 PRESSED STEEL PALLETS In Stock

Send tracing or pallet for quotation.

GENERAL CONCRETE EQUIPMENT CO.
307 Hunter Street
Dept. PQ
Gloucester, New Jersey

FOR SALE TRUCK MIXERS

2—3 yd. Ransome Hi-up Mixers mounted on 1947 4750 Autocars—$4500.00 ea.
1—2 yd. Rex Horiz. Mtd. on 1947—522 G.M.C.—$2750.00. 2 sp. rear. All in perfect working condition.

YARDVILLE CONCRETE SUPPLY COMPANY
YARDVILLE, N. J., PHONE TRENTON 5-1408

FOR SALE

One Stearns 7-B Joltcrete Machine with off bearing hoist. 4"-8"-10" and 12" Mold Boxes and Pallets. Also racks for this machine. All in good condition, ready for immediate use.

ECONOMY BLOCK COMPANY
6332 West State Street Wauwatosa 13, Wisconsin
Ph.: Bluemound 8-1620

WANTED

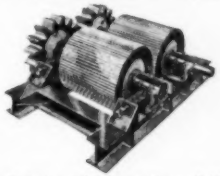
Used fully automatic 2 or 3 block machine. State condition, price, year, make and location of machine.

Box No. E 26, c/o Concrete Manufacturer
431 So. Dearborn Street Chicago 5, Illinois

CRUSHERS - VIBRATING SCREENS CONVEYORS - SCALES - FEEDERS - IDLERS

GUARANTEED EQUIPMENT — IMMEDIATE SHIPMENT

CINDER, PUMICE, PERLITE CRUSHERS



10 to 20 tons per hour capacity....$ 431.00
25 to 50 tons per hour capacity.... 1029.00
Complete with hopper

HEAVY DUTY PLATE AND PAN FEEDERS

Complete with motor and drive.
Priced from $381.00

CONVEYORS & CONVEYOR PARTS

Troughing idler conveyors. Any length, belt widths to 60".
Prices from $392.00

Flat belt type bulk material conveyors. Any length, belt widths to 48".
Prices from $653.00

BUILD YOUR OWN CONVEYORS

We have standard sections, head and tail pulleys, take-ups, drives, idlers, speed reducers, sheaves, belting, etc.

3-roll Troughing Idlers for these sizes:

14" belt	$16.50	24" belt	$22.50
16" belt	17.25	30" belt	23.60
18" belt	21.40	36" belt	26.00
42" belt	$29.75		

1-roll Return Idlers for these sizes:

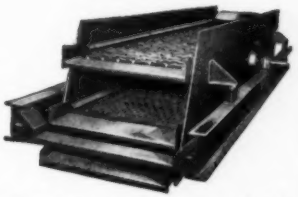
14" belt	$6.38	30" belt	$10.00
16" belt	6.75	36" belt	11.00
24" belt	6.75	42" belt	12.00
48" belt	$13.00		

All steel. Interchangeable with other well known makes. Replaceable ball bearings. No bearing adjustments required. Easy to start and will run in cold weather. Rust-proof ball races; maintenance is negligible.

SAVE WITH "ECONOMY-TYPE" IDLERS

"Spool Idler" economy conveyors for lighter loads of cinders, gravel, stone, wet concrete. Very low price.

VIBRATING SCREENS



Heavy duty eccentric shaft types. One to five decks. Screening sizes from 3'x8' to 5'x14'. Priced from.....$1416.00

Screen cloth or plate included. Many smaller machines in stock. Screen cloth included. Prices start at $431.00.

Big Stock of cloth and plates.
Send us your want list.

TRUCK SCALES

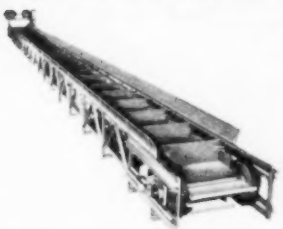
15 Ton Truck Scales.....$518.00
20 Ton Truck Scales..... 586.00
26 Ton Truck Scales..... 650.00

Other scales to 50 ton capacity. All truck scales complete with structural steel weighbridge. Replacement parts for most all makes of scales.

PORTABLE CONVEYORS

Several in stock. Various widths and lengths in troughed belt, flat belt, and flight types. Gasoline and electric power. Some as low as $405.00.

HEAVY DUTY FLIGHT CONVEYORS



For high-temperature conveying as well as normal work. For lime and cement plants, kilns, lightweight aggregate furnaces.

Any length. Flights up to 8" x 24". All welded structural and sheet steel. Heavy duty, double guided chain.

Priced from **$514.00**

See our bargain list on page 168 of this issue.

BONDED HAS GUARANTEED EQUIPMENT FOR QUARRIES, SAND & GRAVEL PRODUCERS, LIME PLANTS, LIGHTWEIGHT AGGREGATE AND CLAY-PRODUCTS PROCESSING. WE ALSO EQUIP CEMENT PLANTS & BLOCK MANUFACTURERS

WRITE FOR COMPLETE CATALOGUE AND PRICE LIST OF NEW BONDED EQUIPMENT. ALSO OUR BARGAIN LIST OF TRADEINS, DEMONSTRATORS, AND REPOSSESSIONS. REBUILT AND WITH NEW EQUIPMENT GUARANTEES

More than 3000 mines and quarries have modernized with Bonded equipment.

BONDED SCALE AND MACHINE COMPANY

PHONES: GArfield 2186; FRanklin 6-8898, Evenings.

110 Bellview Columbus 7, Ohio

FOR SALE

76 steel drying racks, hold 72 block, made for hydraulic off bearer (spade type). One heavy duty single drum, belt driven hoist. Will handle from smallest cable to ¼ inch—spool diameter 15"—length of spool 18". $250 worth of new parts for 1950 Model Stearns #9 Joltcrete.

LAKE VIEW CONCRETE TILE COMPANY
LAKE VIEW, IOWA

BARGAINS

With New Equipment Guarantees. Immediate Shipment.

BONDED SCALES

SPECIAL #380
BONDED heavy duty motor truck scale, platform size 18' x 9', capacity 26 tons. This is complete with structural steel and weighing beam. It was used less than three months and traded in on a 40' scale with 40 tons capacity. It carries a new scale guarantee. Price is $920.00 new, and it is offered for $675.00.

SPECIAL #381
This is a new 30 ton scale with a 24' x 10' platform. We will not make this capacity scale in 24' platform sizes, and will close out this $1300.00 value for $950.00.

SPECIAL #382
BONDED heavy duty scale, model 2620B. This scale has been in use less than 3 months. The price new is $992.00. It is equivalent to a new scale. The platform size is 20' x 9' and the capacity is 26 tons. It is offered at $725.00 subject to prior sale, and carries a new scale guarantee.

SPECIAL #382A
This is a new 30 ton scale with a 24' x 9' platform and used weighing beam. We will not make this capacity scale in 24' platform sizes, and close out this scale at $885.00.

SPECIAL #383
BONDED 26 ton scale, 24' x 10', model 2624BW, complete with structural steel. Structural steel for this scale is brand new. Traded in on a 40 ton scale with a 45' platform. It carries a new scale guarantee. Priced at $1180.00 new. We offer it for $835.00.

SPECIAL #383A
We have a new 40 ton scale with used weighing beam, platform size 24' x 10'. We will not make this size scale with this capacity—price $1000.00.

SPECIAL #384
BONDED heavy duty motor truck scale, platform size 24' x 9', capacity 26 tons. Complete with structural steel and weighing beam. Traded in after being used less than a year on a longer length platform. New price is $1155.00. Our price to you is $795.00. It carries a new scale guarantee.

SPECIAL #385
BONDED motor truck scale, model 4034BW, a 40 ton scale with a 34' x 10' platform, regularly priced at $2250.00. Repossessed from a strip coal miner, and offered with a new scale guarantee at $1740.00, a saving of $510.00.

SPECIAL #386
BONDED heavy duty truck dump scale, capacity 26 tons. Platform size 20' x 9'. Complete with weighing beam and structural steel. New price is $2092.00. A completely rebuilt trade-in, with new scale guarantee. It is offered at $975.00.

SPECIAL #387
BONDED heavy duty 2622B scale. Capacity 26 tons, with 22' x 9' platform. In use less than 6 months—traded in on a 50 ton scale. Carries new scale guarantee. Priced new at $1060.00. This is a bargain at $745.00.

BONDED CONVEYORS

SPECIAL #341
One BONDED mobile flight conveyor, model MFL 162. Used only a short time, then traded in on another BONDED flight conveyor designed for permanent installation. Length 23'4". Flight size 10" x 2". Equipped with ABN gasoline engine. Priced at special price of $695.00.

SPECIAL #343
We are not going to stock 14", and 16" idlers and return rolls in the future. They are slow sellers. We are closing out what we have on hand at a 25% discount from the list prices. They are offered at the reduced prices shown below.

14" troughing idlers	$16.50	16" troughing idlers	$17.25
14" return rolls	6.38	16" return rolls	6.75

They will go at the reduced price only while our present stock lasts. We will make them up on order only at the regular price when the stock is gone.

SPECIAL #388
New 1951 model BONDED 20' mobile tire conveyor with 16" diameter rubber tire wheels, 16" belt width, 19¾" frame. Complete with motor, drive and switch. Regular price $1095.00. Priced subject to prior sale at $895.00.

SPECIAL #389
BONDED 20' mobile tire conveyor 1951 model with 16" diameter rubber tire wheels, 12" belt, motor, drive and switch. Frame width, 19¾". Used less than a week and traded in on a 40' long conveyor. Price new $953.00. A bargain at $785.00.

SPECIAL #390
Previous model BONDED coal unloader, 8" belt. With 7" diameter steel wheels, motor and drive. This conveyor is new. Priced new at $565.00. Priced subject to prior sale at $385.00.

SPECIAL #391
BONDED 25' mobile tire flight conveyor for #445 flight chain, 12" x 3" flights, 20" diameter rubber tire wheels on it, motor and drive. Customer had to have a 35' conveyor. Used less than a month. Priced new at $1390.00. Closing out at $1085.00.

SPECIAL #393
BONDED 20' mobile tire mounted flight conveyor with 20" diameter rubber tire wheels. #445 flight chain. Flight size, 12" x 3". Motor and drive on conveyor. Customer traded it on a 35' conveyor. As good as new. Priced new, $1225.00. To close out at $985.00.

BONDED SCREENS

SPECIAL #394
BONDED screen similar to our 136A vibrating screen. It is a single deck screen with a 5' x 6' screening area. It is equivalent to a new screen. The customer used it for a short while. It can be equipped with new screen cloth of whatever specifications the customer would specify. The price of a new screen is $665.00. This is offered at $445.00.

SPECIAL #397
BONDED totally enclosed screen similar to 238A. Two deck, 3' x 8'. One circular feed opening with spout at top; two pans underneath with circular discharge spouts. Top cover and pans are detachable. Ordered by a New Jersey chemical firm that went out of business quick. It never left our factory and we never got paid. New price $1160.00, offered at $685. Photos will be sent on request.

SPECIAL #398
BONDED general purpose screen, model 138A. One deck screen priced new at $787.00. Traded in on a heavy duty screen. In use less than one month. Offered at $550.00.

BONDED CRUSHERS

SPECIAL #368
BONDED special crusher. Special rolls to crush material up to 4" x 1". Built for experimental purposes for a special job. Will crush soft stone, chemicals and many other uses. Used a short time and is as good as new. Weight, 12,000#. Roll sizes: 28" diameter and 36" wide. $4000.00 value at $1650.00.

SPECIAL #370
Same as Special #369, but rolls are 28" diameter and 24" wide. Offered at a special price of $1250.00.

REMNANTS OF BELTING ALL NEW UNLESS OTHERWISE STATED
WRITE FOR FULL LIST

ELECTRIC MOTORS
Used - A.C. Single and 3 phase - 50% off list price
Used - Direct Current Motors - 50% off list price
New - Direct Current Motors - 25% off list price

Also see our ad on page 167 of this issue.

BONDED HAS GUARANTEED EQUIPMENT FOR QUARRIES, SAND & GRAVEL PRODUCERS, LIME PLANTS, LIGHTWEIGHT AGGREGATE AND CLAY PRODUCTS PROCESSING. WE ALSO EQUIP CEMENT PLANTS & BLOCK MANUFACTURERS.

WRITE FOR COMPLETE CATALOGUE AND PRICE LIST OF NEW BONDED EQUIPMENT. ALSO OUR BARGAIN LIST OF TRADE INS, DEMONSTRATORS AND REPOSSESSIONS. REBUILT AND WITH NEW EQUIPMENT GUARANTEES.

More than 3000 mines and quarries have modernized with Bonded equipment.

BONDED SCALE AND MACHINE COMPANY
PHONES: GArfield 2186; FRanklin 6-8898, Evenings. 108 Bellview Columbus 7, Ohio

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FOR SALE

Kent 12 C. F. Mixer - 10 HP Motor	$ 350.00
Kent Elevator - 3 HP Motor	100.00
Set 3 Beam Wheelbarrow Scales	125.00
1948 Stearns Jolterete No. 7	4,750.00
Air Operated Offbearer	400.00
4" x 12" Combination Mold Box	630.00
28 Cu. Ft. Besser Mixer & Skip Hoist	2,000.00
Hough Pay Loader Model HA	1,750.00
25 HP Automatic Gas Boiler	1,800.00
2 Hydraulic Lift Trucks	200.00
3,000 Std. 8 x 8 x 16 P.S. Pallets - BABA	1,350.00
53 Steel Racks @ $15 Each	795.00
575 Sash End 8 x 8 x 16 P.S. Pallets - BATON	287.50
150 Dble. End 8 x 8 x 16 P.S. Pallets - BALM	75.00
2,400 - 4 x 8 x 16 P.S. Pallets	960.00
1,000 Standard 12 x 8 x 16 P.S. Pallets	800.00
300 Sash-End 12 x 8 x 16 P.S. Pallets	270.00
	$16,642.50

All of the above equipment is in first class operating condition. Reason for selling, replacing with larger equipment.

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Mt. Sterling, Kentucky Phone 58

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Several Stearns Model A Clippers in good condition.

2 Lithiblock Block Machines with attachments.

1 Erickson 5000# platform lift truck —International valve in head motor, like new.

Pressed steel and cast iron pallets 8s and 12s in ¾ sizes.

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Six used 3 yard truckmixers mounted on three axle trucks. Two high discharge and four horizontal, some repair work necessary. Will sell individual units or the lot at a bargain. Call or write:

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New — Ready To Use!

40,000 BTU capacity

-Burning gasoline, kerosene or diesel fuel

-Electric blower—12 V. DC or 110 V. AC using small transformer which we furnish with each heater.

Portable, Quick, Clean Heat

Ideal for curing room, concrete plants, work under construction, emergency heat, or auxiliary heaters.

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1—28 Cu. ft. Skip-Hoist
1—Spare Mold box
50—60 block (new) steel racks
Also spare parts

Perfect operating condition — Reason for selling, installing larger machine. Inspection can be made at:

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BRICK MORTAR
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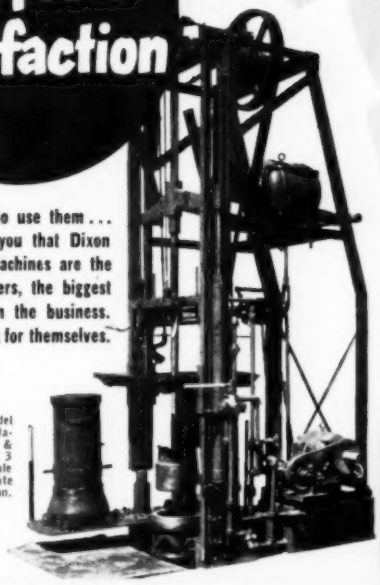
Research Dept.
C/O The Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Illinois

Complete Satisfaction

Ask the men who use them . . . and they'll tell you that Dixon Concrete Pipe Machines are the fastest pipe makers, the biggest money makers in the business. The records speak for themselves.



(Illustrated) Dixon Model "C" Hydraulic Pipe Machine, for 4" to 18" B & S; 6" to 18" T & G 3 and 4' Joints Adaptable to 18" grease traps. Write for complete information.

". . . it has given trouble-free performance."

". . . we are more than pleased and can speak only too high for your equipment."

". . . we can produce more tons, per man, on your machine than any competitive one we know."

". . . off-bearers can not keep pipe away from the machine."

". . . Men come from other plants . . . to work on the Dixon machine."

". . . no pipe failures in four years . . ."

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Plant: 6600 Washington Ave.

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Pipe Bend Machines — Dixon Conveyors
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Complete set-up, used only three months. 10 steel racks, 1300 steel pallets, Brikcrete block making machine, overhead 16 cu. ft. mixer with overhead hoist, and electric motors. Will sell at a good discount or trade for real estate. **Homer E. Busby, 2420 N. Nevada Avenue, Colorado Springs, Colorado.**

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Mounted on 6 x 4 M.H. International Trucks
Mixers are 1950 Hi-Discharge Type

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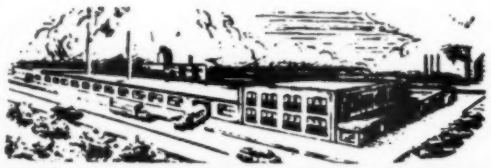

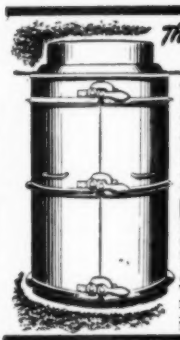

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For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request. Also manufacturers QUINN CONCRETE PIPE MACHINES.

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SAFE HANDS LOSE NO TIME

Natural-rubber treaded*

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Non-slip grip, wet or dry; extra protection against cuts; and 5 to 10 times longer wear

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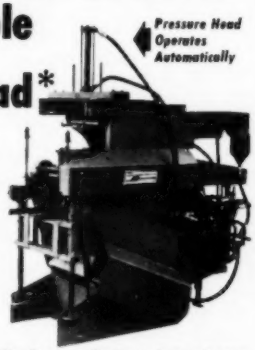
FLEMING FMC-180 AUTOMATIC CONCRETE BLOCK MACHINE—

Now Available WITH Pressure Head*

Combines
PRESSURE with high speed VIBRATION

Pressure Head Operates Automatically



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Complete range of block sizes and shapes available.

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COMPLETE CONCRETE BLOCK PLANT EQUIPMENT

Cure concrete block at lower cost

The Paturzo plants in Baltimore prove it can be done with HEATED AIR from

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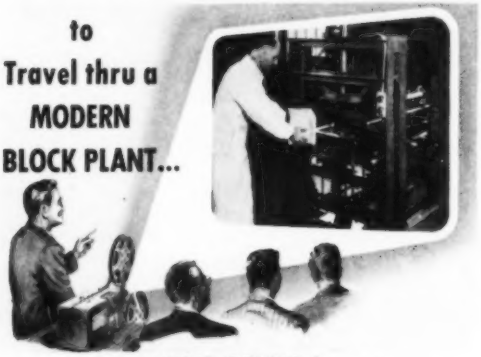

...as YOU RELAX in our
Suite at the Hotel New Yorker
during the
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Please accept our heartiest invitation to join us in New York.

Relax with us, refresh yourself and see how the other fellow makes blocks. How he meets the difficulties everyone encounters and what new equipment he has found to be profitable.

Enjoy a period of good fellowship, meet many of your new and old friends, and see in operation THE KENT STANDARD BLOCKMAKER, the KENT LINTELATOR, KENT STEDIFLO MIXERS and the unique KENT BLOCKMATIC.

We'll be looking for you in February at New York.

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Manufacturers of
CONCRETE PRODUCTS MACHINERY SINCE 1925

LET'S GO *"Commercial"*
RIBBED STEEL PALLETS
for
"CLOSE CLEARANCE"
in making
sharp-edged
Concrete Blocks

"Commercial" Oval Cored Steel Pallets are made so accurately that clearance between pallet and mold box is held to 1/16", insuring sharp-edged units with high "customer appeal."

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They are the only type of steel pallets providing mortar grooves on both ends and bottom of concrete building units — your assurance of stronger bonded joints.

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Currier's all metal forms are precision built to produce a product that requires no hand finishing.

The exclusive franchise for your territory may still be open.

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Patented
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Many satisfied customers operating more than 70 machines.

Write for name of Oswalt-Serviced Plant nearest you.

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OSWALT SERVICE

Economy-wise producers are taking advantage of the 50% increase in production and the extra profit of $60.00 per day, which they obtain from their Vibrapac machines when equipped with Oswalt Service.

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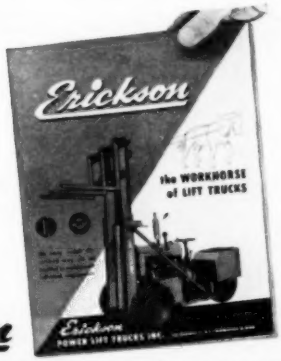

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POWER LIFT TRUCKS

ERICKSON GIVES YOUR BUSINESS A LIFT

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SIDE-SHIFTER—for faster stockpiling and loading.

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at *lower* cost!

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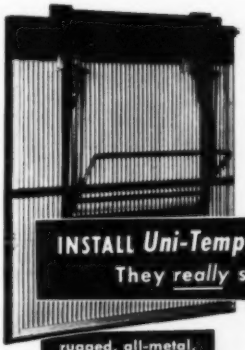

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They *really* seal and insulate

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Ask too about the *Universal* DOOR CARRIER

World-famous door handling equipment—since 1904

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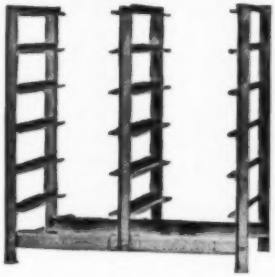

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For Fork or Platform Lift Trucks

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For the best in industrial storage systems, insist on MARIETTA. For better concrete products, use BESLITE, by MARIETTA.

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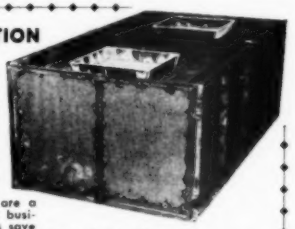

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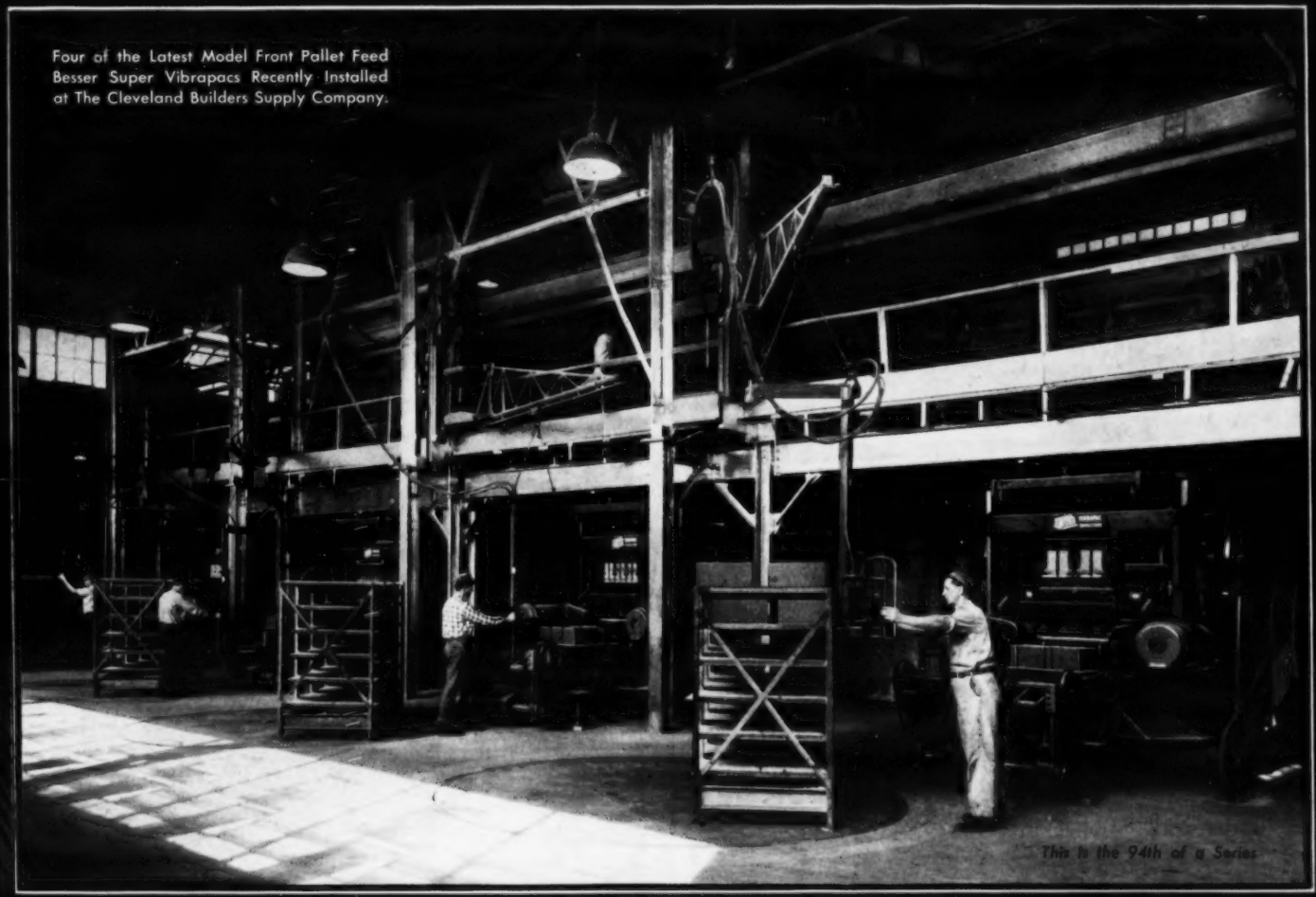
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This is the 94th of a Series

THE CLEVELAND BUILDERS SUPPLY CO.
CLEVELAND, OHIO

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Over 600 Leading Ready-Mix Plants Are Producing Pozzolith Ready-Mixed Concrete

Over 600 Leading Ready-Mixed Plants are now equipped with the POZZOLITH AUTOMATIC DISPENSER

WHY?

Because a producer can, at lower cost:

1. Produce concrete of low permeability . . . with normal Portland cement.
2. Produce high-early strength concrete . . . with normal Portland cement.
3. Produce air entrained concrete without strength loss . . . with normal Portland cement.
4. Produce all of the above properties out of one cement bin . . . with normal Portland cement — stepping up production, reducing inconvenience in handling and cutting costs.

•

In normal mixes, concrete of any given durability, strength and workability, is produced more economically with Pozzolith than by any other means.

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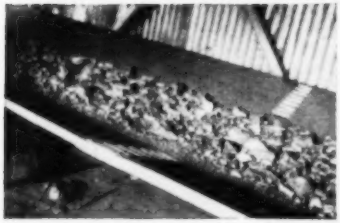
CLEVELAND 3, OHIO — Subsidiary of American-Marietta Company — TORONTO, ONTARIO

FLEXCO® BELT FASTENERS and RIP PLATES



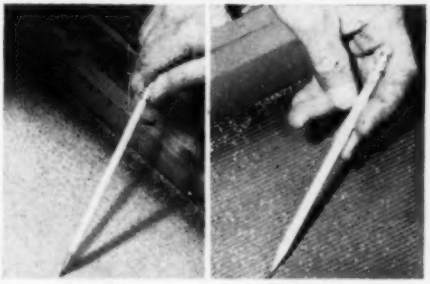
FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH

★ FLEXCO Fasteners make tight butt joints of great strength and durability.
★ Trough naturally, operate smoothly through take-up pulleys.
★ Distribute pull or tension uniformly.
★ Made of Steel, "Monel," "Everdur." Also "Promal" top plates.
★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips.

Compression Grip distributes strain over whole plate area

Order From Your Supply House. Ask for Bulletin F-100

FLEXIBLE STEEL LACING CO.
4623 Lexington St., Chicago 44, Ill.



Without Heater note blinding of mesh

With Heater note lack of blinding

increase capacity and life of your screens with the HANCO Electric Screen Heaters

Used on any single or multiple woven-wire screen; No. 2 mesh or smaller; Hanco Electric Screen Heaters reduce the moisture content of sand, limestone, lime, clay etc. to prevent "blinding". Screen capacity is increased as much as 50%. Beating to open the screen is eliminated; screens last longer. Write for bulletin.

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BEFORE — Johnson-March system turned off at the crusher in an eastern stone crushing plant. Compare this unretouched photo with the one at the right.

AFTER—Note absence of dust when Johnson-March system is operating at this same crusher. These systems have proved themselves with many rock-crushing plants. We'll be glad to furnish names.

STOP DUST

at 1/10 the usual cost!

The many successful installations of Johnson-March Systems testify to their effectiveness. No matter where the dust occurs . . . jaw crushers, cone crushers, conveyors, screens, unloading bins, stacks . . . dust can be controlled or eliminated.

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Johnson March

Specialists in Dust Control

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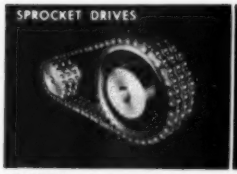

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VIBRATING SCREENS
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ON *EVERY* TRIP!

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For Heavy Conveyor Belts of changing length

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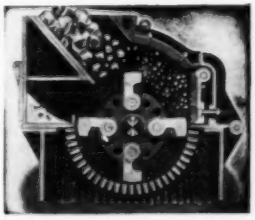
WILLIAMS' "HEAVY-DUTY"
HAMMERMILLS

Built to take 6" feed and reduce to agricultural limestone, ¾" stone and other small sizes in *one operation!* Crushing occurs on unusually heavy breaker and grinding plate before reaching grate. This permits grates to be used for sizing only, minimizing wear. The result; more output, more quickly reduced at less operating cost.

Sectional view of Williams "Heavy-Duty" hammermill, with heavy liners and grinding plate for limestone and other hard material. Particular attention is directed to the grinding plate adjustment which assures uniform close contact of hammers and grinding plate at all times. Also note the metal trap which provides an outlet for the escape of tramp iron.



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Fireclays, coal, limestone, gravel deposits, all minerals. Blast hole drilling.
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Maintenance and Production man to operate small crushing and screening plant—Capable of handling personnel and entire operation—no book work. Give age, family status, past experience, references and salary required to start. Write or call:
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We need a Master Mechanic thirty-five to forty-five years of age.
Applicants should have previous experience in cement plant work and be a Master Mechanic, Assistant Master Mechanic or Plant Engineer at the present time. Salary open. Reply, giving complete details of education, experience, and references to
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1—Model 50 Koehring Mud Jack — will rent or buy—quote best price and location for Inspection
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To Expedite Production—Rock Products Equipment including Rotary Dryers, Kilns, Crushers, Bins, Ball Mills, Vibrating Screens, Filters, Power Shovels & Cranes, Conveyors, Diesel Engines. Will consider a set up plant now operating or shut down. When offering give full particulars.
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3-inch Wilfley Pump in good condition. Send complete details.
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Manager, Supt. 25 yrs. in Eng. Const. all phases. Can pioneer & develop business in gigantic construction programs in Alaska or western states. Have sold & erected construction equipment as well as directing & supervising highway & dam construction. Studious man with integrity. Also hold an Eng. Contractors license in Calif. 9046 Rancho Real, Temple City, A'Plantic 67843.

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Mining Engineer Graduate
25 years management experience from plant operation to Vice President in charge of manufacturing for national concern. Management and operational experience in gypsum, asbestos, cement, paper, felt, asphalt products. West Coast or South location preferred. Prefer permanent position but would consider connection on consulting basis.
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Experienced qualified man to manage and supervise the operation of a concrete pipe plant and the installation of the pipe in the field.
Also must be capable of figuring, estimating and bidding on large pipe jobs. New plant in a new arid location in California.
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Man experienced all phases of Bituminous Asphalt manufacture, machinery and plant maintenance. Knowledge of quarrying and stone crushing useful — Eastern Massachusetts. Address inquiries to
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4024 Cedarapids roll, rebuilt.
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1236 Cedarapids Model 6C plant, new.
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10 x 7 Allis Chalmers Blake type jaw crusher.
#1 Cedarapids Kubit impact breaker.
15 cu. yd. Cedarapids sand drag, new.
60-ton 2-compartment storage bin with clamshell gates.
8' x 18' two-compartment storage bin.
10' x 10' single compartment storage bin.
600 barrel bulk cement bin.
3' x 10' Symons double deck.
3' x 6' Kennedy Van Saun triple deck.
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4' x 6' Kennedy Van Saun double deck.
16" x 90' bucket elevator.

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1½ KW to 125 KW, alternating and direct current, gasoline and diesel powered.

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½-yd. to 2-yd. clamshell buckets.
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2,000 gallon tanks on semi-trailer mounting. New and rebuilt dump bodies.

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Worthington 210 cubic foot, two-stage air-cooled, on skid base with Hercules diesel.

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Worthington two-stage, water cooled, vertical 250 #, 80 CFM, new condition.

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IMMEDIATE DELIVERY

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1—4¼' SYMONS CONE PRIMARY CRUSHER powered with an LP601 Cummins Diesel engine, 250 HP, mounted on a heavy 3-axle pneumatic tired chassis. This unit is also equipped with a 2-stage compressor with electric motor for starting.

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1—CATERPILLAR D13000 DIESEL GENERATING SET, 75 KW capacity, mounted on 2-axle pneumatic-tired chassis. This unit is built over for weather protection. For use in conjunction with the generating set, there is also a 2-wheeled pneumatic-tired trailer equipped with a 7-unit switchboard for central control.

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1—21 CUBIC YARD BIN.

Approximate Capacities in Gravel Pit with 60% Crushing Required From 10" to 2", 200 tons per hour — From 10" to 1", 150 tons per hour.

PRICED AT ONE-HALF THE COST OF NEW PLANT

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6" x 3" to 60" x 48"

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ROGERS 18" x 24" RB. Jaw with apron feeder. A1. $3500.00.
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UNIVERSAL 15" x 36" R.B. Jaw. Good. $1750.00.
TELLSMITH 48" GYRASPHERE, standard mantel, concaves. 100 H.P. Motor.
SYMONS 5½ ft. Shorthead. 200 H.P. Motor.
UNIVERSAL #293 O Twindual PACEMAKER 3-stage Portable Crushing-screening plant. 18" x 24" RB. Jaw, Apron Feeder, Twin Dual Rolls, 2½ deck Vibr. screen. Complete with all conveyors. Tandem pneumatic for direct shovel loading from rock ledge. Late model. $17,500.00. Less than half of reg. new price.
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WILLIAMS No. 30 "Slugger" Hammermill. A1. $2250.00.
WILLIAMS No. 50 "Slugger" Hammermill. $2500.00.
PIONEER No. 56 Portable two-unit Crushing plant. D-17000 Cat. Diesels. 30" x 42" RB. Primary Jaw, 54" x 24" RB. Double Rolls. 40" x 12 ft. Travelling Grizzly. Also smaller 15" x 36" RB. portable. Consider rental purchase,—tonnage or portable.
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Kennedy 19-S, 25-S, 37-S, 49-S

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1—9″ x 8″ #2 Universal Jaw Crusher.
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70'6" centers, 8"x5" buckets.
64'3" centers, 10"x6" buckets.
60' centers, 8"x6" buckets.
44' centers, 10"x6" buckets.
40' centers, 6"x4" buckets.
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80"x15' FLIGHT Separator.

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104' centers, 10" wide belt.
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300' centers, 18" wide belt.
24' centers, 18" wide belt.
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No. 3 Williams.
36"x24" Jeffrey A2.
40"x14" two-roll Traylor.
18"x36" Jaw, Traylor, Bulldog.
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All sizes from 1,000 to 75,000 CFM.

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Syntron, type F33, vibrating.
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11'6"x35' Roto Louvre
4'x16'x¼" shell, welded portable.
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20" dia. 36" long Magnetic Eng. Co. type MP (NEW).

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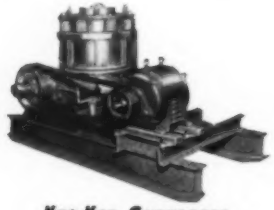

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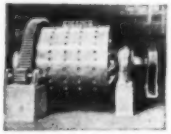

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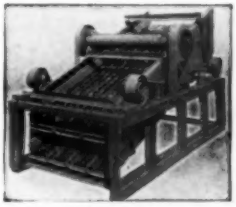

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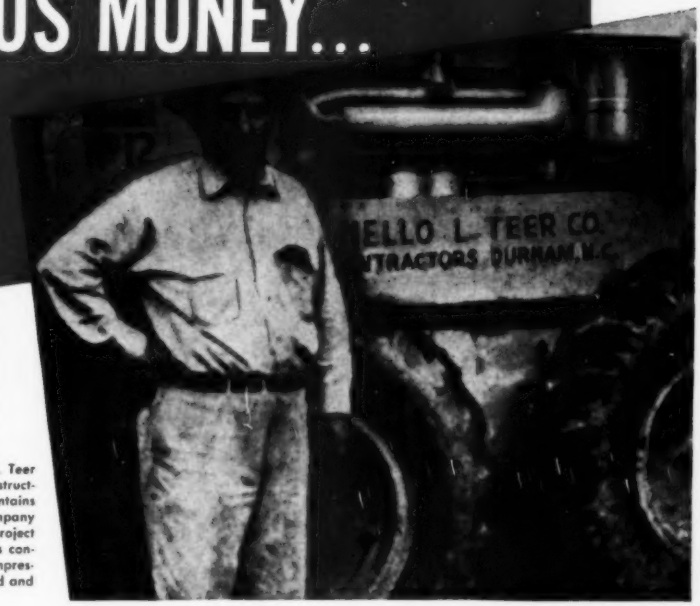

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